

FINDING OF NO SIGNIFICANT IMPACT

on the

ENVIRONMENTAL ASSESSMENT

for

TWO MEDICINE RIVER BRIDGE

**BR 1-3 (42) 210
Control No. 3886**

Glacier County

**Submitted Pursuant to
42USC 4332(2)(c) 49 USC 303
and Sections 2-3-104, 75-1-201 MCA**

by the

Montana Department of Transportation

and

**US Department of Transportation
Federal Highway Administration**

February 2004

**FEDERAL HIGHWAY ADMINISTRATION
FINDING OF NO SIGNIFICANT IMPACT**

for

**TWO MEDICINE RIVER BRIDGE
BR 1-3 (42) 210
Control No. 3886
In
GLACIER COUNTY**

THE FEDERAL HIGHWAY ADMINISTRATION HAS DETERMINED THAT THIS PROPOSED PROJECT WILL HAVE NO SIGNIFICANT IMPACT ON THE HUMAN ENVIRONMENT. THIS *FINDING OF NO SIGNIFICANT IMPACT* IS BASED ON THE ATTACHED ENVIRONMENTAL ASSESSMENT WHICH HAS BEEN INDEPENDENTLY EVALUATED BY THE FEDERAL HIGHWAY ADMINISTRATION AND DETERMINED TO ADEQUATELY AND ACCURATELY DISCUSS THE NEED, ENVIRONMENTAL ISSUES AND IMPACTS OF THE PROPOSED PROJECT AND APPROPRIATE MITIGATION MEASURES. IT PROVIDES SUFFICIENT EVIDENCE AND ANALYSIS FOR DETERMINING THAT AN ENVIRONMENTAL IMPACT STATEMENT IS NOT REQUIRED. THE FHWA TAKES FULL RESPONSIBILITY FOR THE ACCURACY, SCOPE AND CONTENT OF THE ATTACHED ENVIRONMENTAL ASSESSMENT.



Federal Highway Administration
Dale W. Paulson

Date 3-29-2004

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1.0 CLARIFICATIONS TO THE EA

EXECUTIVE SUMMARY.

The following Executive Summary is added.

The Montana Department of Transportation (MDT) is proposing to replace the existing Two Medicine River Bridge with a new structure designed to meet current design standards and the future anticipated needs at the site. This project would include the construction of a new structure across the Two Medicine River as well as new approach roadways on the eastern and western ends of the new structure. The entire project is located within the Blackfeet Indian Reservation.

The existing roadway crosses the Two Medicine River approximately 150 feet above the river on a seven-span, 232-m (761-foot)- long deck truss constructed in the early 1940's. After the most recent inspection by MDT, the bridge rated only 31 out of 100 possible points, resulting in a classification of structurally deficient. In addition, recurrent active landslides in the vicinity of the substructure have caused movement of bridge elements. The approaches to the bridge are narrow and steep, and the bridge has no shoulders.

During the initial screening process four feasible build alignment alternatives (designated as S1, S2, N1, and N2) with multiple bridge types were developed and evaluated. A matrix was created to objectively compare the alignment alternatives based on criteria that included geotechnical issues, alignment geometry, community impacts, capital cost, maintenance, wetland impacts, and aesthetics. Jacobs and MDT worked in close coordination to assign weights to each of the criteria and score each alignment alternative. The scoring of each of the alignments with respect to the weighted criteria resulted in a ranking of the alignments. (This evaluation is documented in the "Draft Alignment Screening Analysis" report dated September 2000.) This alignment comparison process resulted in Alignments S2 and N2 ranking the highest. Jacobs and MDT concurred that Alternatives S1 and N1 were to be dropped from further analysis based on a combination of issues (including community impacts, geometrics, geotechnical concerns, and capital cost) and Alternatives S2 and N2 were to be carried forward.

The No-Build Alternative and a Retrofit Alternative were also evaluated. The No-Build Alternative would not meet the Purpose and Need objectives of the project, such as improving the substandard geometrics and improving the structural deficiencies. Because of the existing structure type, the Retrofit Alternative would require substantial, costly, complex design and reconstruction/rehabilitation to improve the substandard geometric and safety issues. The bridge would also still be subject to landslide activity present at the existing site for both of these alternatives. In addition, it would not be possible to maintain traffic on the bridge during construction, which would require detours of unacceptable length to the traveling public. As a result, the No-Build and the Retrofit Alternatives were eliminated from further consideration.

After the initial screening of alternatives, a preliminary geotechnical investigation was performed at the site, including four borings and two groundwater observation wells at critical locations on Alignments S2 and N2. Based on the findings from this investigation, it was determined that the geotechnical conditions at N2 were much worse than expected from the preliminary study, whereas the conditions at S2 were better than anticipated.

The two alternatives were evaluated and the following differences determined:

Geotechnical Issues. Geotechnical conditions are much worse for N2 than for S2.

Geometric Design. N2 requires a 395-m (1300-foot) radius with 8% superelevation, whereas S2 has a 950-m (3120-foot) radius with 5% superelevation.

Property Avoidance. Alternative N2 results in a significant impact on the adjacent property owners (9.00 hectares (22.2 acres) required), whereas Alternative S2 requires 2.03 hectares (5.02 acres).

Noise. For Alternative N2 the proposed structure would be located within 30 meters (100 feet) of the residence located in the northwest quadrant compared to the 245-m (800-foot) current separation. Therefore, Alternative S2 would produce fewer impacts since there are no receptors within 90 meters (300 feet) of the centerline.

Maintenance. Alternative N2 would possibly require more facility maintenance due to local climate conditions and the more severe superelevation. The combination of icy road conditions and the more severe superelevation may result in vehicles impacting the guardrail, which would then require replacement.

Capital Cost. There is a significant increase and decrease, respectively, in the estimated capital costs of N2 and S2 based on findings of preliminary geotechnical investigation.

Based on these findings, Alternative S2 is proposed as the Preferred Alternative for its lower cost and lesser impact while providing for a safe, aesthetic, and improved facility for the traveling public.

The Preferred Alternative includes the following improvements:

- Widen the roadway to provide two 3.6-m (12-foot) travel lanes and 2.4-m (8-foot) shoulders, with a 3.6-m (12-foot) truck-climbing lane beginning east of the bridge and extending to the eastern project limits.
- Widen the bridge to include two 3.6-m (12-foot) travel lanes with 2.4-m (8-foot) shoulders.
- Improve horizontal and vertical alignments to provide for a 100 km/h (62 miles/h) design speed.
- Provide a 1.6-m (5.25-foot) sidewalk on the north (upstream) side of the bridge structure, with a barrier rail separating the sidewalk from the shoulder.

The three different bridge types evaluated for the Preferred Alignment are:

- **Alignment S2, Concrete Segmental Box Girder Bridge** – consists of a four-span bridge approximately 465 meters (1526 feet) in total length, with a 145-m (476-foot) main span.

- **Alignment S2, Steel Truss and Girders** – consists of a three-span deck truss for the main unit and continuous steel plate girders for the east approach unit. The total length of the bridge is approximately 460 meters (1509 feet), with a 154-m (505-foot) main span.
- **Alignment S2, Steel Plate Girder Bridge** – consists of a four-span constant-depth girder bridge approximately 460 meters (1509 feet) in total length.

The preliminary span arrangements for the bridge type alternatives associated with Alignment S2 assume that a design exception would be obtained to permit the use of a 5% grade on the east approach (see Appendix C of the EA for analysis and justification of this design exception). Should the design exception not be approved, the vertical alignment of S2 would be modified to meet the appropriate criteria. However, this would not result in any additional environmental impacts, and Alignment S2 would still be the Preferred Alignment.

The construction of the Preferred Alternative would not increase the rate of development, cause major changes to adjacent land uses, or contribute to unplanned growth in the project area because it is not adding capacity or substantially changing the existing alignment. There are no residences, businesses, or other structures that would require relocation. An estimated 2.39 hectares (5.91 acres) of additional right-of-way would be needed for the Preferred Alternative.

The historic Two Medicine River Bridge falls under MDT's Programmatic Memorandum of Agreement on Historic Roads and Bridges. A copy of this project's completed "Nationwide" Programmatic *Section 4(f)* Evaluation form for Historic Bridges is included in Appendix A along with a signed letter of concurrence from the Montana State Historic Preservation Office (SHPO). The proposed project would not impact any other *Section 4(f)* sites such as publicly-owned parks, recreation areas, or wildlife/waterfowl management areas.

The project is in an unclassifiable/attainment area of Montana for air quality under 40 CFR 81.327, as amended. The project complies with *Section 176(c)* of the *Clean Air Act* (42 USC 7521(a)), as amended.

The total estimated impact of the project on wetlands is approximately 0.006 ha (0.015 ac) for the concrete box bridge type, 0.013 ha (0.032 acres) for the steel truss bridge type, and 0.001 ha (0.003 acres) for the steel plate girder bridge type. The Preferred Alternative has been designed to avoid, if possible, or minimize disturbance and impacts to identified wetlands. Due to the landslide conditions in the canyon there are no practicable alternatives that entirely avoid wetland impacts resulting from the construction of the piers for the bridge.

Based on consultation with the USFWS, the Montana Natural Heritage Program, and Blackfeet Nation biologists, the proposed project would have the following effects on threatened, endangered, and sensitive species:

- **no jeopardy** on the west slope cutthroat trout
- **no effect** on the bald eagle

- **not likely to adversely affect** the grizzly bear or its critical habitat
- **no effect** on the Canada lynx
- **no effect** on the gray wolf

The addition of roadway shoulders would improve safety for bicyclists throughout the length of the project, and the proposed sidewalk would improve safety and access for pedestrians on the bridge.

Project impacts to the existing utilities include relocation of the telephone and fiber optic lines that are currently carried on the existing bridge, relocation of overhead power lines, and relocation of a waterline. None of the proposed relocations should be difficult.

Other areas of potential concerns and impacts, such as social and economic/environmental justice, noise, water resources/quality, visual, hazardous substances, and secondary and cumulative impacts were evaluated, and the project was determined to have no significant impact on these areas.

Permits required for the Preferred Alternative would include, but are not limited to:

An Aquatic Lands Protection Ordinance (ALPO) permit would be required from the Blackfoot Tribe.

A Notice of Intent (NOI) for Storm Water Discharges under the National Pollutant Discharge Elimination System (NPDES) General Permit (P.L. 92-500) would be required with the U.S. Environmental Protection Agency for the control of water pollution for both specific and non-point sources.

The project would require the following under the *Clean Water Act* (33 U.S.C. 1251-1376)

- A *Section 404* permit from the U.S. Army Corps of Engineers (COE). The COE would be notified that this proposed project qualifies for a "Nationwide" 404 permit under the provisions of 30 CFR 330.

All work would also be in accordance with the *Water Quality Act* of 1987 (P.L. 100-4), as amended.

Permits required for the Preferred Alternative would be acquired prior to any relevant disturbance.

ALTERNATIVES CONSIDERED.

Alternative S1. This alignment concept includes a horizontal curve (1750-meter radius) through the majority of the length of the proposed bridge (both bridge types). The curve is one of the primary differences between Alternative S1 and Alternative S2.

Alternative S2. Note that the steel plate girder bridge option is 70 meters shorter than the other two S2 bridge types. This is because Alternative S2 was initially evaluated (Conceptual/screening phase) with two feasible bridge types (Concrete Segmental Box Girder Bridge and Steel Truss and Girders Bridge) and then refined (Preliminary Design phase) with three different bridge types (Steel Plate Girder Bridge was added). After the Conceptual phase and before the Preliminary Design phase, the profile associated with Alignment S2 was revised to use a 5% grade on the east approach rather than 4% (will require a design exception). This revision significantly reduced the required bridge length for all three types, as follows:

- **Alignment S2, Concrete Segmental Box Girder Bridge –**
Conceptual: The Concrete Box Girder alternate consists of a three-span main unit crossing the river and a three-span approach unit on the east side. The total bridge length is approximately 528 meters (1732 feet), with a 140-m (459-foot) main span.
Preliminary Design: The Concrete Box Girder alternate evaluated during preliminary design consists of a four-span bridge approximately 465 meters (1526 feet) in total length, with a 145-m (476-foot) main span.
- **Alignment S2, Steel Truss and Girders –**
Conceptual: This alternative consists of a straight deck truss for the main unit and continuous steel plate girders for the east approach unit. The total length of the bridge is approximately 531 meters (1742 feet), with a 140-m (459-foot) main span.
Preliminary Design: The Steel Truss and Girders alternate evaluated during preliminary design consists of a three-span deck truss for the main unit and continuous steel plate girders for the east approach unit. The total length of the bridge is approximately 460 meters (1509 feet), with a 154-m (505-foot) main span.
- **Alignment S2, Steel Plate Girder Bridge –**
Preliminary Design: This alternative consists of a four-span, constant-depth girder bridge approximately 460 meters (1509 feet) in total length, with a 135-m (443-foot) main span.

Documentation of the preliminary design and evaluation of these three bridge types is presented in the Type, Size & Location Report, dated February 2003 prepared by Jacobs Civil for MDT.

Evaluation of Alternatives. The first paragraph is replaced with the following:

During the initial concept phase of the project, a comprehensive investigation of the four build alignment alternatives was performed. The alternatives were compared considering the following criteria: geotechnical issues, alignment geometry, community impacts, capital cost, maintenance, wetland impacts, and aesthetics. The results of the investigation and comparison were documented in detail in the "Draft Alignment Screening Analysis" report, dated September 2000. The analysis documented in the "Draft Alignment Screening Analysis" report concluded that Alternatives S2 and N2 were the most feasible and that Alternatives S1 and N1 should be dropped from further consideration, for the reasons summarized below.

The Preferred Alternative (S2). In the third paragraph, it is stated that if the design exception for the 5% grade on the east approach is not approved, the vertical alignment would be modified to meet the appropriate criteria, but that this would not result in any additional environmental impacts. This is true because if a 4% grade were used rather than 5%, the bridge (regardless of type) would be lengthened to the point where the maximum height of the embankment at the east abutment is similar to the height associated with the 5% grade. Therefore, the maximum width of the footprint of the embankment for the 4% grade would be no wider than the footprint for the 5% grade. In fact, since some length of embankment would be replaced with bridge, there would actually be less impact in the abutment area.

Figure 4: Note that the dimensions depicted for each bridge type are those developed during the Preliminary Design phase (as opposed to the Conceptual/screening phase). Also, the dimensions indicated are approximate, and final dimensions will be determined during Final Design.

Under **Removal of Existing Bridge**, the following is added:

The roadway approaches to the existing bridge would also be obliterated in accordance with MDT specifications.

AFFECTED ENVIRONMENT, IMPACTS, AND MITIGATION.

4.1 Social and Economic/Environmental Justice.

This section is replaced with the following updated information:

The following is a summary of the population of Glacier County surrounding the project area by race and/or national origin, based on 2000 U.S. Census Data.

White	4,693
Black	11
Asian & Pacific Islander	16
American Indian or Alaskan Native	8,186
Some other race	24
Hispanic (any race)	159

The Montana Department of Commerce's 2001 Economic and Demographic Analysis of Montana Final Report shows the 1999 per capita personal income in Glacier County as \$14,529. Over the five-year period spanning from 1995 through 1999, the per capita personal income in Glacier County has not varied by more than four percent from the current level. The per capita personal income for Montana in 1999 was \$21,621 and in 2002 was \$24,906, which is about 78 and 81 percent of the national average, respectively. The unemployment in Glacier County in 2002 was 9.9 percent, which is approximately two thirds of the 14.1 percent from 1992 but more than double the 2002 Montana statewide average of 4.6 percent.

In April 2000, the Blackfeet Tribe conducted an unemployment study using data collected between February and March of 2000. Of the 5,359 enrolled members of the Tribe, 1,686 of the members between the ages of 16 and 64 were employed. While this translates to approximately 69% of that age group being unemployed, it must be noted that the unemployment rates calculated for Glacier County and the state of Montana are based on a labor force that includes only those individuals 16 years or older that are holding jobs and seeking jobs. In other words, the labor force excludes retired people, students, people not actively seeking work, and people not available for work for other reasons, although they may be part of the working-age population.

No concentrations of minorities and/or low-income groups have been identified within the immediate vicinity of this proposed project area. The project is located on the Blackfeet Indian Reservation, and the Tribe has been informed of and involved with the environmental process through briefings to the Tribal Council and participation on the Interdisciplinary Team (as described in Section 5.0). Executive Order No. 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations has been observed for this project. Implementation of the preferred alternative would not create disproportionately high and/or adverse effects on the health or environment of minority and/or low-income populations. The proposed project is in compliance with the provisions of *Title VI of the Civil Rights Act of 1964* (42 U.S.C. 200d).

The Preferred Alternative would have short-term impacts within the study area. Local traffic for residents, tourists, and service vehicles would be delayed at times during construction, as construction vehicles enter and exit the highway. Posted speeds may be reduced during construction activities to promote a safe traveling and working environment for both road users and construction workers. Changes in local employment, sales, and revenues would be anticipated to be minor in the short-term during project construction. Regional employment and sales would increase in the short-term due to the presence of the construction work force, but the overall historical growth trend would not change in the long-term.

The proposed action would not have any significant impact on the location, distribution, density, or growth rate of the area's population because it is not adding additional capacity or substantially changing the existing alignment. Overall, the Preferred Alternative would be an improvement to the public road and bridge system in the area. It provides a safer and more efficient facility for all road users.

4.2 Land Use/Relocation.

Note that all acquisition of right-of-way will be performed in compliance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended (1999) and 49 CFR 24.

4.8 Geology and Slope Stability.

Potential concerns resulting from removal of the existing structure and construction of the proposed bridge include impacts to the existing geology and slope stability. During the Final Design phase of the project, a final geotechnical report would be prepared to establish recommendations for and limitations on construction activities such that stability is not compromised during demolition or construction. These recommendations would be used in combination with MDT specifications, supplemental specifications, and special provisions to minimize geological and slope stability impacts to the site.

4.13 Fish, Wildlife, and Threatened or Endangered Species.

USFWS has reviewed and concurred with the findings presented in this section of the EA. A copy of the concurrence letter is provided in Appendix D.

4.14 Visual.

All site disturbances associated with construction of the new bridge and demolition of the existing bridge, including staging areas and access roads, would be restored and/or revegetated to preconstruction conditions in accordance with MDT specifications, to minimize visual impacts resulting from construction activities. All visible substructure elements of the existing bridge will be removed and the area contoured to blend with the surrounding terrain in accordance with MDT specifications.

4.18 Secondary and Cumulative Impacts.

The last sentence of the first paragraph is deleted.

The East Glacier – West project discussed in the third paragraph includes approximately 8.5km (5.3 miles) of plant mix overlay on US 2, with some slope flattening and culvert extensions. Neither the Two Medicine Bridge project nor the East Glacier – West project would add lanes to US 2; they maintain current highway capacity while preserving the integrity and extending the life of the current facility.

REFERENCES.

Copies of all reports listed as prepared by Sverdrup Civil or Jacobs Civil Inc. are available for reference at MDT Headquarters in Helena.

The following are added to the list of references:

Blackfeet Tribe Tribal Employment Rights Office (T.E.R.O.) Department 2000.
Reservation Unemployment Study Feb. – March 2000.

Bureau of Economic Analysis (BEA) 2003. 2002 State Per Capita Personal Income.
Internet Web site (information accessed August 2003).

GCM Services, Inc. May 2000. Cultural Resources Inventory and Assessment for Two Medicine River Bridge.

Jacobs Civil Inc. September 2000. Draft Alignment Screening Analysis for the Two Medicine River Bridge.

Jacobs Civil Inc. May 2002. Revised Hydraulic Report for the Two Medicine River Bridge.

Jacobs Civil Inc. February 2003. Type, Size & Location Report for the Two Medicine River Bridge Replacement.

Jacobs Civil Inc. July 2003. Biological Resources Report for the Two Medicine River Bridge.

Montana Department of Commerce 2001. Economic and Demographic Analysis of Montana Volume II: Technical Appendix Final Report September 2001.

Montana Department of Commerce 2003. Census and Economic Information Center, Montana Department of Commerce, Helena, MT. Internet Web Site.

Montana Department of Labor & Industry, Research, & Analysis Bureau 2003. Local Area Unemployment Statistics. Internet Web Site (information accessed August 2003).

US Census Bureau. 2000 Census. United States Census Bureau, Washington, DC.

2.0 RESPONSES TO COMMENTS AND QUESTIONS ON THE EA

The public hearing for the Two Medicine River Bridge EA was held on May 8, 2003. A copy of the hearing summary is included in Appendix B. The summary includes the comments made and the questions asked and answered during the hearing.

During the public comment period, five written comments were received. The comments and responses are included in Appendix C.

3.0 SUMMARY OF IMPACTS AND MITIGATION

Table 1 summarizes the impacts of the Preferred Alternative for each of the issues discussed in the EA.

TABLE 1: SUMMARY OF IMPACTS	
ISSUE	IMPACT
Social and Economic/ Environmental Justice	<ul style="list-style-type: none"> No significant impact on population location, distribution, density, or growth. No Environmental Justice impacts. Safer traveling conditions and more efficient facility for all road users. Short-term impacts from construction activities including increased travel times.
Land Use / Relocation / Right-of-Way	<ul style="list-style-type: none"> No impact to land use. No relocations. 2.39 ha (5.91 ac) total ROW required.
Parks and Recreation	<ul style="list-style-type: none"> No Section 4(f) or 6(f) properties (except as noted below).
Pedestrians and Bicyclists	<ul style="list-style-type: none"> Sidewalk along north side of bridge improves safety for pedestrians. Added shoulders improve safety for bicyclists.
Historical / Cultural / Archaeological Resources	<ul style="list-style-type: none"> No sites eligible for NRHP within project limits, except the bridge itself.
Programmatic Section 4(f) Evaluation / Adopt a Bridge Program	<ul style="list-style-type: none"> MDT issued a notice for preservation of the bridge in accordance with Historic Bridge Preservation Program. No qualified entity or agency has come forward to adopt the bridge.
Prime and Unique Farmland	<ul style="list-style-type: none"> No prime or unique farmlands in the project area.
Geology and Slope Stability	<ul style="list-style-type: none"> No conditions which cannot be accommodated in design. No conditions that would be exacerbated by construction of the new bridge.
Air Quality	<ul style="list-style-type: none"> Short-term construction impacts. No long-term impacts.
Noise	<ul style="list-style-type: none"> No impacts.
Water Resources/ Quality	<ul style="list-style-type: none"> Minimal short-term construction impacts. Minimal long-term impacts.
Wetlands	<ul style="list-style-type: none"> Avoids Wetlands A, B, and C. Concrete box bridge type would impact 0.006 ha (0/015 ac) of Wetland D. Steel plate girder bridge would impact 0.001 ha (0.003 ac) of Wetland D.
Fish, Wildlife, and Threatened and Endangered Species	<ul style="list-style-type: none"> No jeopardy on the west slope cutthroat trout. No effect on the bald eagle. Not likely to adversely affect the grizzly bear or its critical habitat. No effect on the Canada lynx. No effect on the gray wolf.
Visual	<ul style="list-style-type: none"> Short-term construction impacts. Long-term effects of expanded pavement width and revised fill slopes.

TABLE 1: SUMMARY OF IMPACTS	
ISSUE	IMPACT
Utilities	<ul style="list-style-type: none"> Minor relocations of buried telephone, fiber optic, and a two-inch waterline. Raising overhead power line crossing roadway at one location. Relocation of telephone and fiber optic lines from existing bridge to new bridge.
Hazardous Substances	<ul style="list-style-type: none"> No known hazardous substances.
Permits Required	<ul style="list-style-type: none"> Blackfeet Tribe: Aquatic Lands Protection Ordinance (ALPO) permit. EPA: Notice of Intent for Storm Water Discharges (under NPDES). COE: Notification for Nationwide 404 Permit.
Secondary and Cumulative Impacts	<ul style="list-style-type: none"> No secondary impacts resulting from this project. No definitive cumulative impacts when combined with other projects in the area.
Irreversible and Irretrievable Commitment of Resources	<ul style="list-style-type: none"> Expenditure of various natural, physical, and human resources (e.g. fossil fuels, construction materials, construction labor, etc.), but none that are in short supply.

Table 2 summarizes the mitigation that will be implemented for the Preferred Alternative.

TABLE 2: SUMMARY OF MITIGATION MEASURES	
ISSUE	MITIGATION
Social and Economic / Environmental Justice	Develop traffic control plans to maintain one lane of traffic in each direction throughout construction.
Land Use / Relocation / Right-of-Way	Acquire right-of-way in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended (1999).
Parks and Recreation	No mitigation required.
Pedestrians and Bicyclists	No mitigation required.
Historical / Cultural / Archaeological Resources	No mitigation required.
Programmatic Section 4(f) Evaluation / Adopt a Bridge Program	No mitigation required.
Prime and Unique Farmland	No mitigation required.
Geology and Slope Stability	No mitigation required.
Air Quality	Use dust palliatives, and revegetate exposed areas as soon as practical to mitigate short-term construction impacts.
Noise	No mitigation required.

TABLE 2: SUMMARY OF MITIGATION MEASURES

ISSUE	MITIGATION
Water Resources/ Quality	Prepare and comply with the project Erosion Control Plan, per EPA Pollutant Discharge Elimination System Regulations (ARM 16.20.1314). Comply with Montana Stream Protection Act 124. Use Best Management Practices during construction.
Wetlands	<p>Immediately following construction, restore temporary impacts to wetlands within the project and construction easement areas by restoring to original contours and revegetating.</p> <p>Pursue compensatory mitigation in accordance with the MDT Interagency Wetlands Group Operating Procedure and as required per the COE Nationwide 404 permit.</p> <p>Prepare Special Provisions to include the following conservation measures to minimize unavoidable wetland losses:</p> <ul style="list-style-type: none"> • Flag wetland perimeters to avoid unnecessary disturbance due to construction activities. • Minimize width of the construction right-of-way and/or access routes to that which is required to perform the work. • Minimize vegetation removal/disturbance. Promptly revegetate exposed areas. • Provide bank stabilization and erosion control per MDT Best Management Practices. Implement sedimentation control methods along drainage routes. • Adhere to BMPs relating to water quality and the handling of fuels and other contaminants common to staging areas.
Fish, Wildlife, and Threatened and Endangered Species	<ul style="list-style-type: none"> ▪ Follow mitigation described above for Vegetation and Wetlands. ▪ During construction store food, garbage, and other attractants in a manner that keep these items unavailable to grizzly bears (per USFWS Concurrence Letter, Appendix D of this FONSI).
Visual	Revegetate with desirable vegetation of the type existing in the project area.
Utilities	Relocate as required in accordance with MDT standards.
Hazardous Substances	No mitigation required.
Permits Required	<ul style="list-style-type: none"> ▪ Blackfeet Tribe: Aquatic Lands Protection Ordinance (ALPO) permit. ▪ EPA: Notice of Intent for Storm Water Discharges (under NPDES). ▪ COE: Notification for Nationwide 404 Permit.
Secondary and Cumulative Impacts	No mitigation required.
Irreversible and Irretrievable Resources	No mitigation required.

Note that the EA indicates various mitigation measures that “would” be implemented, if the project moves forward. Upon approval of this FONSI and advancement of the project, all mitigation measures discussed in the EA will be implemented.

4.0 SELECTION OF THE PREFERRED ALTERNATIVE

Based on the Two Medicine River Bridge EA and the summary of public comments and responses, the Federal Highway Administration has determined that Alternative S2 as described in the attached EA is the Preferred Alternative.

5.0 COORDINATION PROCESS

The proposed action has been coordinated with the appropriate federal, state, and local agencies in order to comply with the National Environmental Policy Act and the Montana Environmental Policy Act. The Notice of Availability for the Two Medicine River Bridge Environmental Assessment (EA) was published in eight area newspapers on two different dates each, as follows:

- Great Falls Tribune – April 20 and May 8
- Kalispell Daily Interlake – April 20 and May 8
- Browning Glacier Reporter – April 24 and May 8
- Columbia Falls Hungry Horse News – April 24 and May 8
- Shelby Promoter – April 24 and May 8
- Whitefish Pilot – April 24 and May 8
- Cut Bank Pioneer Press – April 23 and May 7
- Cut Bank Western Breeze – April 27 and May 6

A copy of the notice is contained in Appendix A. The public review period began on April 23 and ended on May 22, 2003. Copies of the EA were available for review beginning April 23 at the following locations:

- East Glacier Community Center (Library)
- Blackfeet Headquarters, Government Square, Browning

Copies of the EA were also available upon request from MDT. State and Federal agencies, local entities, and property owners were notified by direct mail (flyer) that the EA was available for review. The flyer and distribution list are included in Appendix A.

A public hearing/open house was held on May 8, 2003 at the East Glacier Community Center (Library) in East Glacier, Montana. The open house was held from 6:00 to 6:30 p.m., and the public hearing was held at 6:30 p.m. The public hearing was attended by 29 persons, and a copy of the hearing summary is included in Appendix B.

APPENDIX A
PUBLIC NOTICES

Newspaper Notice.

Great Falls Tribune
April 20 and May 8

Kalispell Daily Interlake
April 20 and May 8

Browning Glacier Reporter
April 24 and May 8

Columbia Falls Hungry Horse News
April 24 and May 8

Shelby Promoter
April 24 and May 8

Whitefish Pilot
April 24 and May 8

Cut Bank Pioneer Press
April 23 and May 7

Cut Bank Western Breeze
April 27 and May 6

NOTICE OF AVAILABILITY

Two Medicine River Bridge Replacement Environmental Assessment (EA)

Project No. BR 1-3(42)210

PUBLIC HEARING

A Public Hearing will be held to provide information and take public comments on the EA addressing the proposed replacement of the bridge on US 2 over the Two Medicine River. The EA and preliminary design plans will be available for review. The project begins east of East Glacier and extends approximately 1.5 miles (2.5 km) to the crest of the hill east of the existing bridge. The project includes replacement of the bridge and realignment of the existing roadway. The Public Hearing will be held:

Thursday, May 8, 2003
East Glacier Community Center (Library)
Glacier Avenue and US 2, East Glacier, MT
Open House: 6:00 p.m.
Presentation: 6:30 p.m.

The Federal Highway Administration (FHWA), the Montana Department of Transportation (MDT), and Jacobs Civil Inc. invite interested individuals, organizations, and federal, state, and local agencies to review the EA and provide comments.

Viewing Locations

Copies of the EA will be available for public review beginning April 23, 2003 at the following locations:

- East Glacier Community Center (Library) – 6:30 p.m. to 8:30 p.m., Wed
- Blackfeet Headquarters, Government Square, Browning - 8:00 a.m. to 4:30 p.m., Mon-Fri

How to Comment

A 30-day calendar-day review period will begin on April 23, 2003, and conclude on May 22, 2003. Verbal or written comments may be presented at the Public Hearing. Written comments on the EA may also be addressed to: Cheryl Jones, Jacobs Civil Inc., 1455 West 2200 South, Suite 300, Salt Lake City, UT 84119, Fax (801)978-9121, or cheryl.jones@jacobs.com by **May 22, 2003**.

For further information or to arrange special accommodations for persons with disabilities, contact: Mark Studt at (406)444-9191, MDT at (888)231-5819, or TDD at (800)335-7592.



Montana Department of Transportation

Flyer, sent via direct mail.

NOTICE OF AVAILABILITY

**Two Medicine River Bridge Replacement
Environmental Assessment (EA)**

Project No. BR 1-3(42)210

PUBLIC HEARING

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Montana Department of Transportation

Mailing List for Public Hearing Flyer.

PUBLIC AGENCIES

Emmy Davis Blackfeet Tribe PO Box 850 Browning, MT 59417	Browning Fire Dept Box 469 Browning, MT 59417	Cut Bank Fire Dept/ City Hall 113 E Main Cut Bank, MT 59427
Dan Carney Blackfeet Tribe/Fish & Wildlife PO Box 850 Browning, MT 59417	Browning Police Dept / City Hall Box 469 Browning, MT 59417	Cut Bank Police Dept/ City Hall 113 E. Main Cut Bank, MT 59427
Rodney Gervais Blackfeet Tribe/TERO PO Box 850 Browning, MT 59417	Browning School District PO Box 610 Browning, MT 59417	Don Jermunson Glacier / Waterton Visitors Center PO Box 96 West Glacier, MT 59936
Gene Grant Blackfeet Tribe / TERO PO Box 850 Browning, MT 59417	Ron Crossguns Bureau of Indian Affairs PO Box 880 Browning, MT 59417	Judi Kuncel Resources Protection Manager Glacier National Park HCR 72 Box 13-3 St. Mary, MT 59417
Mark Magee Blackfeet Tribe PO Box 850 Browning, MT 59417	Ross Denny Bureau of Indian Affairs PO Box 880 Browning, MT 59417	Mary Riddle Glacier National Park West Glacier, MT 59936
Marilyn Parsons Blackfeet Tribe PO Box 850 Browning, MT 59417	Carl Foggin Bureau of Indian Affairs 316 N 26 th St. Billings, MT 59101	Allen Lowry Glacier County Commission 512 E Main Cut Bank, MT 59427
Gerald Wagner Blackfeet Tribe/Environment PO Box 850 Browning, MT 59417	Clifford Hall Bureau of Indian Affairs PO Box 880 Browning, MT 59417	Donna Taylor Glacier National Park Resources HCR 72 Box 3-1 St. Mary, MT 59417
Mary Clare Weatherwax Blackfeet Tribe PO Box 2029 Browning, MT 59417	Ted Hall Bureau of Indian Affairs PO Box 880 Browning, MT 59417	Amy Vanderbilt Glacier National Park PO Box 128 West Glacier, MT 59936
Don White Blackfeet Tribe/Transportation PO Box 850 Browning, MT 59417	Ramona Hill BIA - Archaeology PO Box 880 Browning, MT 59417	School District #9 Babb School PO Box 70 Babb, MT 59411
	Bart Rice BIA – Road Construction PO Box 880 Browning, MT 59417	School District #50 Box 150 East Glacier Park, MT 59434

Todd Tillinger
US Army Corps of Engineers
301 S Park, Drawer 10014
Helena, MT 59626

Buzz Cobell
US Fish & Wildlife Service
4052 Bridger Canyon Rd
Bozeman, MT 59715

Scott Jackson
US Fish & Wildlife Service
100 N Park Ave, STE 320
Helena, MT 59601

BUSINESSES

4 Directions
101 1st Ave NE
Browning, MT 59417

A Wild Rose
PO Box 29
West Glacier, MT 59336-0029

Ambulance Service
915 4NW
Choteau, MT 59422

Aspenwood Country Inn
& Campgrounds
Box 1763
Browning, MT 59417

Backpacker's Inn
Box 94
East Glacier, MT 59434

Bad Rock Country B&B
480 Bad Rock Dr
Columbia Falls, MT 59912

Bill Beck
Bear Creek Guest Ranch
Box 151
East Glacier, MT 59434

Bell Motor Co
121 E Main
Cut Bank, MT 59427

Big Creek Campground
734 Baker Ave
Whitefish, MT 59937

Sharol Birks
Birches Inn
Box 190334
Hungry Horse, MT 59919

Bison Creek Ranch
Box 144
East Glacier, MT 59434

Blondie's
33 Dawson Ave
East Glacier Park, MT 59434

The Brown House
Box 43
East Glacier, MT 59434

Brownies Grocery & H I Hostel
Box 229
East Glacier, MT 59434

Patricia Smith
Browning Chamber of
Commerce
PO Box 1763
Browning, MT 59417

Burger Treat
101 Central Ave
Browning, MT 59417

Stella Hislop
C-Barr Heart Ranch
Box 130304
Coram, MT 59913

Marlene Brunaugh
Cedar Shore Cabins
140 Trailridge Rd
Kalispell, MT 59912

Chief Mountain Junction
Box 349
Babb, MT 59411

Carol Pike
Columbia Falls Chamber
Box 312
Columbia Falls, MT 59912-0312

Corner Motel
1201 E Main St
Cut Bank, MT 59427

Crooked Tree Motel
Box 190406
Hungry Horse, MT 59919

Shawn Campbell
Cut Bank Chamber of
Commerce
Box 1243
Cut Bank, MT 59427

David Parsons
Cut Bank Creek Outfitters
Box 1472
Browning, MT 59417

Dancing Bears
Box 149
East Glacier, MT 59434

Denny's
HC 36 Box 1A
Essex, MT 59916

Terry Serburne
East Glacier Chamber of
Commerce
Box 260
East Glacier, MT 59434

East Glacier Motel
Box 93
East Glacier, MT 59434

Evergreen Motel
Box 130217
Coram, MT 59913

Firebrand Food & Ale
PO Box 2
East Glacier Park, MT 59434

Fireband Pass Campground
Box 146
East Glacier, MT 59434

Lynn & Wayne Mackie
Flying Eagle Ranch
Box 130141
Coram, MT 59913

James & Donnie Landwehr
Glacier Fishing Charters
375 Jensen Rd
Columbia Falls, MT 59912

Glacier Gateway Inn
1121 E Railroad St
Cut Bank, MT 59427

Patty Hall
Glacier Gateway Outfitter
435 Badger Creek
Valier, MT 59434

Glacier Grocery
300 W Main
Browning, MT 59417

Glacier Highland Resort
Box 397
West Glacier, MT 59936

Glacier Inn Motel
Box 2428
Columbia Falls, MT 59912

Glacier Park Circle R Motel
Box 219
East Glacier, MT 59434

Dale Scott
Glacier Park Inc
PO Box 147
East Glacier Park, MT 59434

Glacier Park Super 8
7336 US Hwy 2 E
Columbia Falls, MT 59912

Glacier Park Trading Company
316 Hwy 2
East Glacier Park, MT 59434

Glacier Peaks RV Park
3185 Hwy 40
Columbia Falls, MT 59912

Sally Thompson
Glacier Raft Co Cabins
Box 210 TP
West Glacier, MT 59936

Glacier Restaurant
Hwy 2 & 89
Browning, MT 59417

Terri Stoneman
Glacier River Ranch
Box 176
Coram, MT 59913

Glacier View Golf Club
Box 185
West Glacier, MT 59936

Glacier Village Restaurant
304-308 Hwy 2 E
East Glacier Park, MT 59434

Glacier Wilderness Resort
Box 295
West Glacier, MT 59936

Richard Jackson
Great Divide Guiding & Outfitters
Box 315
East Glacier, MT 59434

Rick Evans
Great Falls Area Chamber
PO Box 2127
Great Falls, MT 59403-2127

Steve Roling
Great Northern Llama Co
600 Blackmer Lane
Columbia Falls, MT 59912

Reno Baldwin
Great Northern Whitewater
Box 278
West Glacier, MT 59936

The Half-Way Motel
Box 632
Essex, MT 59916

Historic Tamarack Lodge &
Motel
Box 190236
Hungry Horse, MT 59919

Izaak Walton Inn
Box 653
Essex, MT 59916

Jacobson's Cottages
Box 216
East Glacier, MT 59434

Johnson's World Famous
Restaurant
Johnson's at North Edge of
Town
St. Mary, MT 59417

Joe Unterreiner
Kalispell Chamber of Commerce
15 Depot Park
Kalispell, MT 59901

Kiowa Resort & Motel
Jct MT Hwy 49 & US Hwy 89
Kiowa, MT 59417

Lake Five Resort
Box 338
West Glacier, MT 59936

LaSalle Campgrounds
5618 Hwy 2 W
Columbia Falls, MT 59912

Lodge Pole Gallery & Tipi Village
Box 1832
Browning, MT 59417

Ed Guffey
Log Cabin
Box 190448
Hungry Horse, MT 59919

Meadow Lake Resort
100 St. Andres Dr.
Columbia Falls, MT 59912

Meadow Lake View B&B
180 Meadow Lake Drive
Columbia Falls, MT 59912

Mini Golden Inns Motel
Box 190460
Hungry Horse, MT 59919

Christopher Dalimata
Moccasin Lodge
Box 273
West Glacier, MT 59936

Montana Ranch Adventures
RR HC 72 Noffsinger Rd
Browning, MT 59417

Jim Voeller
Montana River Anglers
7461 US Hwy 2 E
Columbia Falls, MT 59912

Christine Brown
Montana Treasures
Box 130284
Coram, MT 59913

Anderson-Eldering
Morris Travel
5 W Main
Cut Bank, MT 59427

Mountain Pine Motel
Box 260
East Glacier, MT 59434

North American RV Park &
Camp
PO Box 130449
Coram, MT 59913

Northern Motor Inn
609 W Main St
Cut Bank, MT 59427

Northern Native Insurance
120 E Central
Browning, MT 59417

Northern Plains Craft Shop
Box 589
Browning, MT 59417

Ed Anderson
Northern Plains Outfitters
Box 152
Browning, MT 59417

Ol' River Bridge Inn
7358 Hwy 2E
Columbia Falls, MT 59912

Paola Creek B&B
HC 36 Box 4C
Essex, MT 59916

Park View Inn B&B
Box 567
Columbia Falls, MT 59912

Point Motel
1109 E. Main St.
Cut Bank, MT 59427

Leigh Heldstab
Point of View Cabins
Box 2731
Columbia Heights, MT 59912

Poor Boys Café
Hwy 89
Browning, MT 59417

Russell & Amy Panno
Prairie Smoke Resort
Box 122
Babb, MT 59411

Red Eagle Motel
Box 896
St. Mary, MT 59417

Restaurant Thimbleberry
Hwy 49
East Glacier Park, MT 59434

The Rising Wolf Ranch
Box 66
East Glacier, MT 59434

Sears Motel & Campground
PO Box 275
East Glacier, MT 59434

Serranos Mexican Restaurant
29 Dawson Ave
East Glacier Park, MT 59434

Shady Grove Campground
PO Box 691
Cut Bank, MT 59427

Larry Flesch
Shelby Chamber of Commerce
P. O. Box 865
Shelby, MT 59474

Jim Kennedy
Silverwolf Log Chalet
Box 115
West Glacier, MT 59936

Smiley's RV Campground
411 Meade St
East Glacier, MT 59434

Smoky Bear Ranch B&B
4761 Smoky Bear Lane
Columbia Falls, MT 59912

St. Mary – Glacier Park
106 W Shore
St. Mary, MT 59417

St. Mary Lodge & Resort
US Hwy 89 & Going-to-the-Sun
Road
St. Mary, MT 59417

Alison Card
Stanton Creek Lodge
HC 36 Box 2C
Essex, MT 59916

Subway Salad & Sandwiches
Box 608
Browning, MT 59417

Francine Forrester
Summit Station Lodge
Box 167
East Glacier, MT 59434

Summit Station Restaurant
and Lounge
Box 1472
Browning, MT 59417

Terrace Motel
124 6th Ave SE
Cut Bank, Mt 59427

Thronson's General Store
PO Box 169
St. Mary, MT 59417

Rob & Tracy Elek
The Timber Wolf Resort
Box 190800
Hungry Horse, MT 59919

Town Pump
510 W Main
Cut Bank, MT 59427

Town Pump Food Stores
1101 E Main
Cut Bank, MT 59427

Two Medicine Grill
314 Hwy 2
East Glacier Park, MT 59434

Jodi Running Fisher
Two Medicine River Outfitters
Box 16
East Glacier, MT 59434

Two Medicine Teepee
Adventures
Box 1510
101 Pata St
Browning, MT 59417

Vista Motel
Box 98
West Glacier, MT 59936

War Bonnet Lodge
Box 1000
Browning, MT 59417

West Glacier KOA
PO Box 215
West Glacier, MT 59936

West Glacier Mercantile
Box 8
West Glacier, MT 59936

West Glacier Motel
Box 398
West Glacier, MT 59936

Western Motel
Box 1851
Browning, MT 59417

The Whistle Stop Restaurant
1024 US Hwy 49
East Glacier Park, MT 59434

Whistling Swam Motel
Box 318
East Glacier, Mt 59434

Whitefish Area Chamber of
Commerce
PO Box 1120
Whitefish, MT 59937

Cameron Lee
Wilderness Lodge/Skyline Outfit
Box 190391
Hungry Horse, MT 59919

Darvy O'Brian
Withrow House-Wilderness
Retreat
Box 655
Essex, MT 59916

PRIVATE CITIZENS

Purnee Brandvold
Box 185
East Glacier, MT 59434

Natalie E. Brinkman Estate
C/O William W. Harris
Box 407
Lakeside, MT 59922

John Chase
4436 3rd Avenue N.
Great Falls, MT 59405

Myron P. Chase
2001 3rd Avenue North
Great Falls, MT 59401

Brint Compton
P. O. Box 2309
Browning, MT 59417-2309

Douglas Crary, Jr
Box 509
Choteau, MT 59422

Roberta DesRosier
P. O. Box 234
East Glacier, MT 59434

Todd & Brenda Fox
Siloh Valley
Box 130211
Coram, MT 59913

Brian & Barbara Gallup
Box 293
East Glacier, MT 59434

William P. Grant
PO Box 163
East Glacier, MT 59434

Mark Howser
PO Box 318
East Glacier Park, MT 59434

Alice Lowry
322 2nd Ave SE
Cut Bank, MT 59427

Terry McMasters
East Glacier, MT 59434

John Ray
East Glacier Park
East Glacier Park, MT 59434

Joe & Linda Rogers
Heartwood
Box 130187
Coram, MT 59913

Raymond Salois
4021 St. W
Cut Bank, MT 59434

Robert Scalese
Box 1
Big Sandy, MT 59520

Louis Sitzmann, Jr
Box 129
East Glacier, MT 59434

Tony Stizmann
218 US Hwy 2
East Glacier Park, MT 59434

Darla Taylor
411 Meade
East Glacier, MT 59434

Lisa Wyrick
1025 2nd Avenue
East Glacier, MT 59434

Todd Zimbelman
501 1st Avenue N. E.
Conrad, MT 59425

APPENDIX B
PUBLIC HEARING SUMMARY

SUMMARY OF PUBLIC HEARING – Two Medicine River Bridge May 8, 2003

Attendees:

Mick Johnson, MDT Great Falls District Administrator
Mark Studt, MDT Project Consultant Manager
Jason Giard, MDT Great Falls District
Cheryl Jones, Jacobs Civil Project Manager
Laura Cooper, Jacobs Civil Environmental Planner
Dave Korpi, Jacobs Civil Bridge Engineer
Ernie Petzold, Jacobs Civil Bridge Engineer
Carol Kruger, Wendt Kochman
Sandy Robinson, Wendt Kochman

Helen After Buffalo	Patrick After Buffalo
Joan Ballantyne	Norman Ballantyne
John A. Chase	Ed DesRosier
Barb Gallup	Brian Gallup
Bob Gervais	Bill Grant
Carl Haggan	Donald Little Dog
Erica Little Dog	Lisa Little Dog
Maureen Little Dog	Pat Lutz
John McGill	Clinton R. Pilgeram
Robin Rink	Bob Scalese
Diane Scalese	Steve Smith
Alice Tailfeathers	Sam Thornton
Dan Wippert	State Senator Glenn Roush

Glacier County Commissioner William Icenoggle
Glacier County Commissioner John W. Ray
Glacier County Commissioner Raymond D. Salois

On May 8, 2003, the Montana Department of Transportation and Jacobs Civil Inc. held a public hearing in East Glacier, Montana, to discuss the Environmental Assessment and preliminary plans for the Two Medicine River Bridge Replacement project. The meeting was held from 6:00 p.m. to 8:00 p.m. at the East Glacier Library. Representatives of Jacobs, MDT, and Wendt Kochman attended the meeting.

Formal Meeting Overview:

Mick Johnson of MDT opened the meeting at 6:30 p.m. with introductions of the representatives from Jacobs Civil and MDT, as well as State Senator Glenn Roush and three Glacier County Commissioners, William Icenoggle, John Ray, and Ray Salois. He explained the purpose of the public hearing was to discuss the proposed replacement of the bridge on US 2 over the Two Medicine River. He explained that first representatives from Jacobs Civil Inc. would give an overview of the project, and then the meeting would be

open to public comment and questions.

Cheryl Jones, Jacobs Civil Project Manager, began the presentation portion of the hearing by explaining that there has been no significant change to the plans for the new bridge since the last public meeting. She gave a brief history of the project to date.

The existing sixty-year-old bridge is approximately 150 feet above the river. After the most recent inspection by MDT, the bridge rated only 31 out of 100 possible points. While this does not mean the current bridge is in imminent danger of falling down, it is a candidate for replacement. The approaches are narrow and steep, and the bridge has no shoulders.

Because there are no appropriate detour options, the existing bridge must remain open while the new bridge is under construction. Geotechnical concerns exist because of recent landslides, so Jacobs sent geologists to determine the most feasible alternative bridge sites. Option N1 presented significant geotechnical problems, while S1 had no apparent advantages over S2 while causing more impacts to adjacent properties. Option N2 has poor soil conditions, which would result in high costs for the bridge foundation, leaving S2 as the best option. S2 is preferred also because it has no significant environmental impacts.

Ms. Jones also detailed the alternatives for the bridge structure. One is a steel truss bridge, similar to the existing bridge, one is a steel plate girder bridge, and the third is a concrete bridge. Ms. Jones showed three conceptual drawings of the concrete bridge: one with concrete girders, two others with steel girders, but differing in the depth of the girders at the piers. The concrete girder alternative is estimated to cost approximately \$20 million, and the steel girder options will cost approximately \$21 million. Ms. Jones stressed that these were all preliminary designs, and the final bridge may look different than any of the drawings, depending on design decisions made during final design.

The new bridge will have shoulders and a pedestrian sidewalk on the north side, plus an open-style railing that will be aesthetically pleasing. The lanes will be 12 feet wide with eight-foot shoulders. The existing bridge has 7% grade approaches from both the east and west. The new bridge will have about a 2½% grade on the west approach and a 5% grade on the east approach. In addition, the deck drains will be improved to keep standing water off the bridge after storms.

Laura Cooper explained that the environmental planners worked closely with the project engineers, and this bridge presented few environmental challenges. Minimizing impacts to wetlands is always a priority for transportation projects. The bridge project will impact one wetland area with 0.032 acre or less affected by a pier. The bridge presents no impact to the river or to grizzly, wolf, or lynx habitat. Regarding human impact, the right-of-way taking affects less than six acres and requires no demolition of homes or businesses. The sidewalk will make the bridge safer for pedestrians. Air quality will not be affected, and noise should not be a problem.

Ms. Jones then pointed out the preliminary plans on the table available for viewing and opened the meeting to public comment. She reminded listeners that the public comment period extends until May 22, 2003.

Mr. Johnson explained that the project is potentially fundable in 2006-07. The MDT cannot currently fund the bridge replacement because only \$17 million is allotted for all the bridges in Montana. They plan to apply to the National Bridge Discretionary Fund for the new bridge and believe this project is a good candidate for funding.

Steve Smith lives on the north side of the new bridge. He questioned the listing of only four wetland areas and requested that the environmental engineers reevaluate the area on the northwest side of the bridge because it has a streambed that is wet four months per year. He wants the contractor to be responsible for damage done by large equipment crossing this area during the demolition of the existing bridge.

Ms. Cooper explained that all existing wetlands have been delineated. Wetland delineation depends on standing water during some portion of each year, soil type, and vegetation. She said the area in question could be reevaluated and marked for protection, even if it does not qualify as a wetland.

Steve Smith then commented that moving the bridge 200 feet downstream moves the eastbound lanes closer to Brian Gallup's home. He wanted assurance that it was more than 150 feet from the Gallup's Home. Ms. Jones responded that the lane would actually be 400 feet from the Gallup's home. Ms. Cooper stated that law requires that a noise study be performed if the proposed traffic lanes are within 300 feet of an existing home. With the S2 alignment, the distance to the Gallup's home exceeds that which would required a noise study. Brian Gallup agreed that it was within the law, but wished to go on record that the noise level will still be raised for his home because of moving the bridge downstream and raising it 17 feet higher than the existing bridge.

Steve Smith then questioned the process for selecting the contractor for the project in terms of quality of workmanship. Mr. Johnson replied that the State of Montana is required by law to select the lowest qualified bidder. He also stated that the S2 Bridge would not be built under traffic since the existing bridge will remain until the new bridge is in place.

Maureen Little Dog questioned how many contractors in Montana could handle a project of this magnitude. Mr. Johnson responded that probably at least six Montana contractors could do the job, and the project is likely to attract bigger, national firms as well.

Maureen Little Dog reminded the community to remain involved in the process and ask questions.

Ed DesRosier asked how much consideration was given to the existing height of the bridge. Although the new bridge will be raised 17 feet, it will still require a grade to drive down to the bridge. Ms. Jones explained that the higher you raise the bridge above the river, the higher the costs are for construction because the bridge is longer. She said they studied the existing bridge's accident history, and most accidents were weather-related rather than

related to the steepness of the grade of the approach to the bridge. New and improved deck drains on the new bridge will help the standing water and icing problems. She also stated that the cost would increase by \$4 million to go to a 4% grade from the 5% grade currently proposed.

Sam Thornton questioned the open side rail, expressing concern about the wind blowing semi-trucks across traffic lanes. Ernie Petzold, Jacobs Bridge Engineer, said the new rails should present no bigger wind problems than the existing bridge currently has.

John Chase wanted to register a plea for the rest stop near the bridge, because there currently is no public restroom, and he wants to make the area tourist-friendly. Brian Gallup said he'd be opposed to a rest area on his land and stated that it is only two miles to travel on to East Glacier.

Steve Smith expressed concern about people on the bridge looking into his backyard with binoculars and stated that the bridge is changing his privacy and way of life. He wants to discourage pedestrian traffic on the bridge because he already spends several days each spring cleaning up garbage from the riverbanks.

Mr. Johnson said rest areas are built with a public input process. If a city requests a rest area, MDT considers the availability of public water and electricity sources and a caretaker for the area. The City of Conrad is currently in the process of obtaining a rest area, and one will probably be built in three years. He encouraged the people of East Glacier to discuss the idea with their county commissioners and to put in a request for a rest area if they want one. The state currently has 57 rest areas, and each new area costs about \$1.5 million to build and \$100,00 per year to maintain.

Steve Smith reiterated that he would oppose a rest area in or near East Glacier, particularly if it were near the bridge.

Mr. Johnson said that when MDT applies for federal funds for the new bridge, no matching funds from the state are required since the bridge is located on an Indian Reservation. He fully expects the funding to come from the Bridge Discretionary Fund, but if not MDT will allocate one-half of the normal bridge funded for a couple years until they have enough for the project. It is fundable and doable, but may take two seasons to complete because of the short weather window for construction. Dave Korpi, Jacobs Bridge Engineer, added it was at least a two-season project and may extend to three depending of the type of bridge chosen for the final project.

Bob Gervais of Browning said he has driven the existing bridge for many years and has seen the approaches fall into the river. He expressed concerns about landslides and the road washing away into the river. Ms. Jones repeated that the S2 location was chosen to minimize the concern of landslides.

Bob Gervais of Browning asked about the cost of the bridge. Ms. Jones said the cost would be approximately \$22 million depending on the final design.

Patrick After Buffalo of the Blackfeet Nation cited his personal and family history and questioned the legality of easements as well as the ability of the land to hold a new road. He would like to see the new bridge built over the existing one so no new easements are required. He referred to a law called a "Brendalac" that preexists existing right-of-way laws. He is also concerned about affirmative action and treaty rights. Mr. Johnson and Ms. Jones stated that this project will provide 200 jobs to the East Glacier area, and all work would be done legally and in agreement with the Blackfeet Nation and the Bureau of Indian Affairs.

Jason Giard of MDT called the meeting to an end at around 8:00 pm.

APPENDIX C

WRITTEN COMMENTS RECEIVED AND RESPONSES

Comment:

**Comment Form for:
PUBLIC HEARING**

May 8, 2003 – East Glacier Community Center (Library)

Subject:

Two Medicine River Bridge Replacement
Project No. BR 1-3 (42) 210/Control No. 3886
East end of East Glacier to crest of hill east of existing bridge
Reference Post 210

Comments:

1. I hope that grades on bridge approaches can be much less than on the existing structure. The present set-up can sometimes simulate a bobsled run during the winter. The Highway Dept does a good job for the most part in keeping it sanded, but there are times when the approaches present a real hazard.
2. Provide for a pedestrian walk on north side of new bridge. The hope is that this could tie in with existing and proposed walkways/trails around East Glacier.
3. Any possible way that a rest stop could be included with this project It would be very much appreciated! We try to sell the State of Montana as a tourist destination and then neglect to consider some of the most basic services.

By (signature): John A Chase
Printed Name: John A Chase
Address: 4436 3rd Ave N, Great Falls 59405

If mailing comments after the meeting, send no later than May 22, 2003 to:

Jacobs Civil Inc.
1455 West 2200 South, Suite 300
Salt Lake City, UT 84119
Attn: Cheryl Jones
Or e-mail to: cheryl.jones@jacobs.com



Response:



Jacobs Civil Inc.
1455 West 2200 South
Suite 300
Salt Lake City, Utah 84119 U.S.A.
1.801-978-9050 Fax 1.801-978-9121
October 24, 2003

John A. Chase
4436 3rd Ave. N
Great Falls, MT 59405

SUBJECT: Two Medicine River Bridge Replacement
Project No.: BR 1-3 (42) 210, Control No. 3886

Dear Mr. Chase:

Thank you for attending and providing your comments at the public hearing for the Two Medicine River Bridge project in May. The following information is offered in response to your comments.

You requested that the approach grades to the bridge be adjusted. The existing bridge has 7% grade approaches from both the east and west. The new bridge will have about a 2½% grade on the west approach and a 5% grade on the east approach. In addition, the deck drains will be improved to prevent standing water from accumulating on the bridge after storms. This combination of improvements will improve the safety of the bridge.

You also commented that you hoped a pedestrian walk would be provided on the north side of new bridge that could tie-in with existing and proposed walkways/trails around East Glacier. The new bridge will indeed have a pedestrian sidewalk along the north side.

You also indicated a desire to have a rest area included with this project. A rest area is not part of the current project scope. However, MDT encourages you encourage you to discuss your request with your county commissioners. Rest areas are generally built as a result of requests from the public, through their local officials. If a city or county requests a rest area, MDT evaluates the request considering the availability of public water and electricity sources and a caretaker for the area, as well as the availability of funding. The state currently has 57 rest areas, and each new area costs about \$1.5 million to build and \$100,00 per year to maintain.

Thank you again for attending the public hearing and providing your comments. Feel free to call me at any time if you have questions or would like an update on the status of the project.

Sincerely,

JACOBS CIVIL INC.

A handwritten signature in cursive script that reads 'Cheryl A. Jones'.

Cheryl A. Jones, P.E.
Project Manager

A Subsidiary of Jacobs Engineering Group Inc.

Comment:

**Comment Form for:
PUBLIC HEARING**

May 8, 2003 – East Glacier Community Center (Library)

Subject:

Two Medicine River Bridge Replacement
Project No. BR 1-3 (42) 210/Control No. 3886
East end of East Glacier to crest of hill east of existing bridge
Reference Post 210

Comments:

DURING THE BRIDGE DESIGN HAVE THE
PEDESTRIAN WALKWAY ON THE RAILROAD
SIDE OF THE BRIDGE. THIS COULD TIE IN
LATER WITH THE IN PROGRESS VISITOR INFORMATION
AREA AND PRESENT HWY 49 PEDESTRIAN
WALKWAY

ANY CHANCE OF A PUBLIC RESERVOIR IN THIS
PROJECT?

By (signature): Myron P Chase 406-761-0631
Printed Name: MYRON P CHASE
Address: 2001 3rd AVE NORTH GREAT FALLS, MT 59401

If mailing comments after the meeting, send no later than May 22, 2003 to:

Jacobs Civil Inc.
1455 West 2200 South, Suite 300
Salt Lake City, UT 84119
Attn: Cheryl Jones
Or e-mail to: cheryl.jones@jacobs.com



Response:



Jacobs Civil Inc.
1455 West 2200 South
Suite 300
Salt Lake City, Utah 84119 U.S.A.
1.801-978-9050 Fax 1.801-978-9121

October 24, 2003

Myron P. Chase
2001 3rd Avenue North
Great Falls, MT 59401

SUBJECT: Two Medicine River Bridge Replacement
Project No.: BR 1-3 (42) 210
Control No. 3886

Dear Mr. Chase:

Thank you for attending and providing comments at the public hearing in May for the Two Medicine River Bridge Replacement project. You requested that the pedestrian walkway be placed on the railroad side of the bridge so it could tie-in later with the planned visitor information area and existing Hwy 49 Pedestrian walkway. As we discussed at the public hearing, the new bridge will indeed have a pedestrian sidewalk along the north side.

You also asked if there would be any chance of incorporating a public restroom into this project. A public restroom will not be provided. Should you believe a public restroom facility is needed in the area, you should discuss it with your county commissioners for future consideration.

Thank you again for your comments. Feel free to call me at any time if you have questions or would like an update on the status of the project.

Sincerely,

JACOBS CIVIL INC.

A handwritten signature in cursive script that reads 'Cheryl A. Jones'.

Cheryl A. Jones, P.E.
Project Manager

A Subsidiary of Jacobs Engineering Group Inc.

Comment:

**Comment Form for:
PUBLIC HEARING**

May 8, 2003 – East Glacier Community Center (Library)

Subject:

Two Medicine River Bridge Replacement
Project No. BR 1-3 (42) 210/Control No. 3886
East end of East Glacier to crest of hill east of existing bridge
Reference Post 210

Comments:

1. PLEASE ADJUST THE GRADE APPROACH TO
PROVIDE SAFER ENTRY TO THE BRIDGE

2. Will monies for a sidewalk be available?

By (signature):

Printed Name:

Address:

Patricia J. Hughes
PATRICIA J. HUGHES
213 6TH AVE SE CWT BANK 59427

If mailing comments after the meeting, send no later than May 22, 2003 to:

Jacobs Civil Inc.
1455 West 2200 South, Suite 300
Salt Lake City, UT 84119
Attn: Cheryl Jones
Or e-mail to: cheryl.jones@jacobs.com



Response:



Jacobs Civil Inc.
1455 West 2200 South
Suite 300
Salt Lake City, Utah 84119 U.S.A.
1.801-978-9050 Fax 1.801-978-9121

October 24, 2003

Patricia J. Hughes
213 6th Avenue SE
Cut Bank, MT 59427

SUBJECT: Two Medicine River Bridge Replacement
Project No.: BR 1-3 (42) 210
Control No. 3886

Dear Ms. Hughes:

Thank you for attending and providing comments at the public hearing in May for the Two Medicine River Bridge Replacement project.

At the hearing, you requested that the approach grades to the bridge be adjusted and also asked if the project would include a sidewalk. As we discussed, the existing bridge has 7% grade approaches from both the east and west. The new bridge will have about a 2½% grade on the west approach and a 5% grade on the east approach. In addition, the deck drains on the bridge will be improved to prevent standing water from accumulating on the bridge after storms. This combination of improvements will improve the safety of the bridge.

In response to your second comment, the new bridge will indeed have a pedestrian sidewalk along on the north side.

Thank you again for your comments. Feel free to call me at any time if you have questions or would like an update on the status of the project.

Sincerely,

JACOBS CIVIL INC.

A handwritten signature in cursive script that reads 'Cheryl A. Jones'.

Cheryl A. Jones, P.E.
Project Manager

A Subsidiary of Jacobs Engineering Group Inc.

Comment:

ALBERT MIRON

P.O. Box 1593
Kalispell, MT 59903
406-257-2891

RE: Two Medicine River Bridge

May 15, 2003

In the year 1940 as a 20 year old residing in Billings, Mt. I inquired about a job opening with the W.P. Roscoe Bridge Co. and was given the position as timekeeper and paymaster for the Two Medicine River Bridge to be constructed Near East Glacier. I was given the job and transported there in a company vehicle. This job of building a 1000 foot span across it 250 feet above river bed was a challenging one because our Allies in Europe were fighting the Nazis and these Allies needed assistance with armory and ammunition which required steel. Fortunately our steel was available for the girders, rivets, etc. to proceed. We had an amazing crew of steelworkers that did a great job. Laborers were recruited from the nearby Blackfoot Indian tribe on the reservation. Only one injury of any consequence happened when a rivet fell from the bridge top and hit a worker on the ground from 250 feet and penetrated his metal helmet causing a large gash. I rushed him to the Cut Bank, Mt. hospital to get it sewed up and he eventually returned to the job. I was paid \$35.00 per week salary and provided a timekeepers mobile unit to work out of and sleep in. It was rather primitive as I heated it with a wood/coal stove and had no electricity or water to it. Tiring of this life style and with the cold of winter I moved into the Monteath Hotel in East Glacier much to the managements objections because I discovered I was also the jobs watchman! In years after on our family trips to Glacier National Park with my wife and four kids from Billings, Mt. I would cross this span and remark "this is the bridge that dad built". Just a slight exaggeration! Those days were so memorable to me, the country so beautiful, I was so overwhelmed with his scenic grandeur that I vowed if ever the chance arose to get near it I would. Then lo and behold 10 years later here I am 35 miles from the entrance to Glacier National Park in Kalispell, Mt. Incidentally when this bridge job was finished the Roscoe Company wanted me to move to another bridge job in the State of Washington but I declined and headed for a much warmer climate in Los Angeles, California. The influence of the Two Medicine River Bridge determined my course in life. It was so profound and acted d like a magnet to draw me closer to it I can only say in conclusion that if I had my life to live all over again I would follow the same course as I was surrounded by such great people in such great places! Please replace the bridge, as it will take visitors into a fantastic world they will remember forever.

Sincerely,

Signature



Response:



Jacobs Civil Inc.
1455 West 2200 South
Suite 300
Salt Lake City, Utah 84119 U.S.A.
1.801-978-9050 Fax 1.801-978-9121

October 24, 2003

Al Miron
P.O. Box 1593
Kalispell, MT 59903

SUBJECT: Two Medicine River Bridge Replacement
Project No.: BR 1-3 (42) 210
Control No. 3886

Dear Mr. Miron:

Thank you for the fascinating information you recently shared involving your experiences and involvement with the original construction of the Two Medicine River Bridge. It really helped bring the history of the existing bridge to life. It is truly a spectacular area, and I am glad that you were able to find your way back to a place that obviously meant so much to you.

Thank you again for sharing your memories and experiences. Feel free to call me at any time if you have questions or would like an update on the status of the project.

Sincerely,

JACOBS CIVIL INC.

A handwritten signature in cursive script that reads 'Cheryl A. Jones'.

Cheryl A. Jones, P.E.
Project Manager

A Subsidiary of Jacobs Engineering Group Inc.

Comment:

**Comment Form for:
PUBLIC HEARING**

May 8, 2003 – East Glacier Community Center (Library)

Subject:

Two Medicine River Bridge Replacement
Project No. BR 1-3 (42) 210/Control No. 3886
East end of East Glacier to crest of hill east of existing bridge
Reference Post 210

Comments:

Your Presentation was very nice. Cooking good, too.

A sound system would be better - In some of these halls, it is hard to get the speaker's voice out - especially ~~on~~ women.

I am pleased that there is not too much problem with EA. on this project

As a professional Range Conservationist (Retired) I fully realize the EA problems you face and trying to convey your actions.

I think there are some concerns about the end result leaving a mess (by contracting machinery and not disposing of brush, rock, etc. Look at the new fence the BNSF has put along its R/W just west of E.G. Park. They have left a MESS.

By (signature): *Clinton R. Pilgeram*

Printed Name: *CLINTON R. PILGERAM*

Address: *P.O. Box 67, EAST GLACIER PK. MT. 59434*

If mailing comments after the meeting, send no later than May 22, 2003 to:

Jacobs Civil Inc.
1455 West 2200 South, Suite 300
Salt Lake City, UT 84119
Attn: Cheryl Jones
Or e-mail to: cheryl.jones@jacobs.com



Response:



Jacobs Civil Inc.
1455 West 2200 South
Suite 300
Salt Lake City, Utah 84119 U.S.A.
1.801-978-9050 Fax 1.801-978-9121

October 24, 2003

Clinton R. Pilgeram
P.O. Box 67
East Glacier Park, MT 59434

SUBJECT: Two Medicine River Bridge Replacement
Project No.: BR 1-3 (42) 210
Control No. 3886

Dear Mr. Pilgeram:

Thank you for attending and providing your comments at the public hearing for the Two Medicine River Bridge project in May. I appreciate the information you shared regarding the difficulty in hearing some of the presenters. I will make sure we take that into consideration at any future meetings.

Feel free to call me at any time if you have questions or would like an update on the status of the project.

Sincerely,

JACOBS CIVIL INC.

A handwritten signature in cursive script that reads 'Cheryl A. Jones'.

Cheryl A. Jones, P.E.
Project Manager

A Subsidiary of Jacobs Engineering Group Inc.

APPENDIX D
USFWS CONCURRENCE LETTER

USFWS Concurrence Letter – page 1



United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
MONTANA FIELD OFFICE
100 N. PARK, SUITE 320
HELENA, MONTANA 59601
PHONE (406) 449-5225, FAX (406) 449-5339

MASTER FILE
COPY

M.44 MDT (I)

RECEIVED September 2, 2003

SEP 05 2003

ENVIRONMENTAL

Tom Atkins
Montana Department of Transportation
Environmental Services
2701 Prospect Avenue
P.O. Box 201001
Helena, Montana 59620-1001

cc: M. Johnson - Great Falls
C. Zell - Piecemeal
J. Kulman - Bridge
T. Atkins - Environ.
Bonnie Steg - Environ.
B. Effinger - Environ.

Dear Mr. Atkins:

This is in response to your August 19, 2003 letter regarding the Montana Department of Transportation's (Department) proposal to replace the Two Medicine River bridge near the eastern edge of East Glacier in Glacier County, Montana (BR 1-3(42)210; Control No. 3866). This project would replace the existing structure on U.S. Highway 2 with a new bridge, as well as construct new approach roadways on each end of the bridge, for a total project length of approximately 2.0 kilometers. Your letter transmitted the biological assessment (BA) for this project dated July 2003, and requested U.S. Fish and Wildlife Service (Service) concurrence that the proposed project would not likely adversely affect threatened grizzly bears (*Ursus arctos horribilis*). The Service's Montana Field Office received your letter on August 21, 2003.

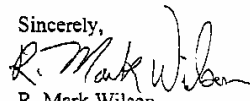
The Service has reviewed the BA and believes that the activities associated with the proposed Two Medicine River bridge replacement do not have the potential to cause an adverse effect to grizzly bears. Therefore, we concur with your determination of "not likely to adversely affect," and formal consultation is not required. The Service bases its concurrence on information displayed in the BA. Because of this project's location within the Northern Continental Divide Ecosystem grizzly bear recovery zone, the Service strongly recommends that the Department require its construction contractors to store their food, garbage, and other attractants in a manner that keeps these items unavailable to grizzly bears. The Service acknowledges the Department's determination that this project would not affect threatened gray wolves (*Canis lupus*), Canada lynx (*Lynx canadensis*), bald eagles (*Haliaeetus leucocephalus*), water Howellia (*Howellia aquatilis*), Ute Ladies'-tresses (*Spiranthes diluvialis*), or Spalding's catchfly (*Silene spaldingii*). No critical habitat has been proposed or designated for any listed species at this project location.

This concludes informal consultation pursuant to regulations 50 CFR §402.13 implementing Section 7 of the Endangered Species Act. This project should be re-analyzed if new information reveals effects of the action that may affect threatened or endangered species or their habitat, if the project is modified in a manner that causes an effect not considered in this consultation, or if the proposed coordination measures and best management practices are not fully implemented.

page 2

The Service appreciates your efforts to consider and conserve fish and wildlife resources, including threatened and endangered species. If you have questions regarding this letter or your responsibilities under the Endangered Species Act, please contact Mr. Scott Jackson, of my staff, at (406)449-5225, extension 201.

Sincerely,


R. Mark Wilson
Field Supervisor

Copy to: Todd Tillinger, COE, Helena, MT

APPENDIX E

ENVIRONMENTAL ASSESSMENT

Environmental Assessment

For

Two Medicine River Bridge
BR 1-3 (42) 210 Control Number 3886

in

Glacier County, Montana

This document is prepared in conformance with the Montana Environmental Policy Act (MEPA) requirements and contains information required for an environmental Assessment under the provisions of ARM 18.2.237(2) and 18.2.239. It is also prepared in conformance with the National Environmental Policy Act (NEPA) requirements for an Environmental Assessment under 23CFR771.119.

Submitted Pursuant to 42 USC 4332(2)© 49 USC 303

And Sections 2-3-104, 75-1-201 MCA

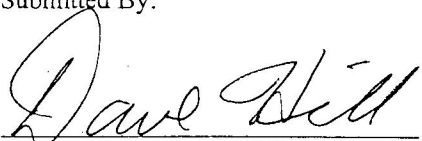
By the U.S. Department of Transportation

Federal Highway Administration

And the

Montana Department of Transportation

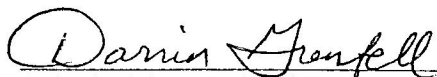
Submitted By:



Montana Department of Transportation
Environmental Services

Date: 3-5-03

Reviewed and Approved for Distribution:



Federal Highway Administration

Date: 4/2/03

The following persons may be contacted for additional information concerning this document:

Dave Hill
Manager - Environmental Services
Montana Dept. of Transportation
2701 Prospect Avenue
PO Box 201001
Helena, MT 59620-1001

Dale Paulson
Program Development Engineer
Montana Division
Federal Highway Administration
2880 Skyway Drive
Helena, MT 59602

MONTANA DEPARTMENT OF TRANSPORTATION

**Environmental Assessment
and
Programmatic Section 4(f) Evaluation**

TWO MEDICINE RIVER BRIDGE

PROJECT NO. BR 1-3 (42) 210
CONTROL NO. 3886

PREPARED BY:

JACOBS CIVIL INC.

Salt Lake City, Utah

February 2003



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ENVIRONMENTAL ASSESSMENT

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1.0 DESCRIPTION OF THE PROPOSED ACTION

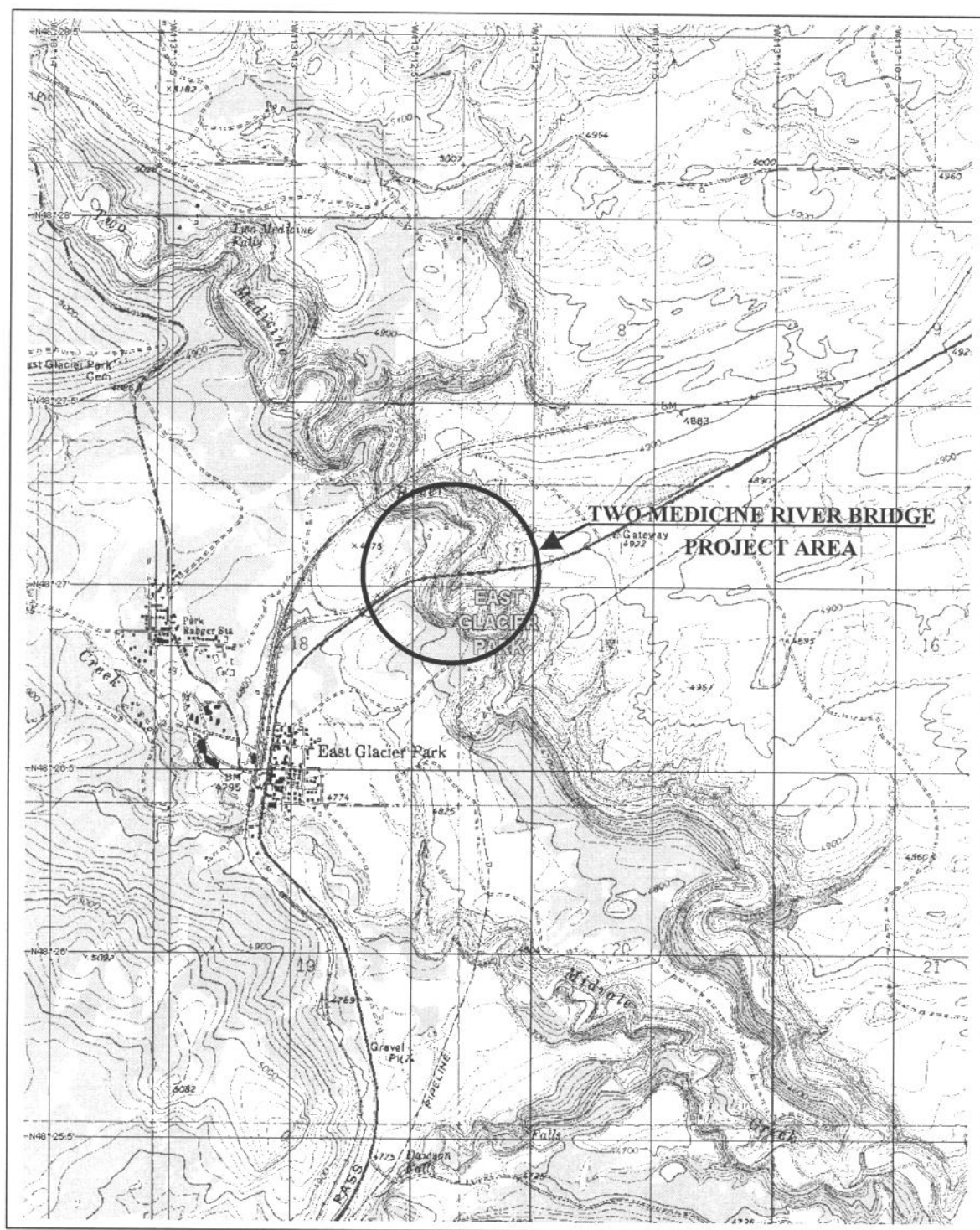
The proposed action consists of the replacement of the existing Two Medicine River Bridge with a new structure designed to meet current design standards and the future anticipated needs at the site. The project would include the construction of a new structure across the Two Medicine River as well as new approach roadways on the eastern and western ends of the new structure.



The Preferred Alternative for the proposed new bridge would be placed on a new alignment south of the existing bridge to allow traffic to be maintained on the existing bridge/roadway during the construction period. In order to minimize environmental impacts, no piers or falsework would be placed in the river bottom.

The project area, shown on Figure 1, is located on US 2 in Glacier County on the Blackfeet Indian Reservation, about 20 km (12.5 miles) west of Browning and one km (0.6 miles) east of East Glacier. The existing Two Medicine River Bridge is located at about Reference Post 210, Section 18, Township 31 North, Range 12 West, M.P.M.

The project limits extend approximately from the east edge of East Glacier to near the crest of the hill east of the Two Medicine River. The total length of the project is approximately 2.0 km (1.2 miles) (measured along the existing roadway).



0 1/2 1
Scale in Miles

0 1/2 1
Scale in Kilometers

Map adopted from 1:24,000 USGS topographic map of East Glacier Park, MT quadrangle, dated 1968.

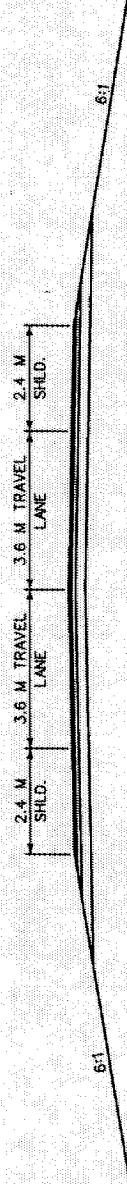
FIGURE 1. PROJECT VICINITY MAP

The design speed would be 100 kilometers per hour (km/h) (62 miles/h), as required for a rural principal arterial and rolling terrain. The proposed roadway typical section is shown in Figure 2 and would include two 3.6-m (12-foot) travel lanes and 2.4-m (8-foot) shoulders, with a 3.6-m (12-foot) truck-climbing lane beginning east of the bridge and extending to the eastern project limits. The bridge would also include two 3.6-m (12-foot) travel lanes with 2.4-m (8-foot) shoulders.

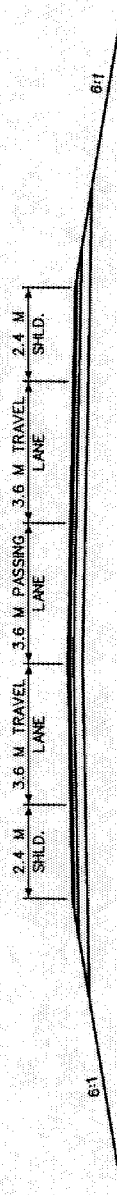
Because of the rural nature of the project area and the lack of existing sidewalks, it is assumed that no sidewalks would be provided on the roadway. However, the beauty of the canyon and the surrounding area encourages motorists to pull off the highway and walk onto the existing bridge. It is therefore prudent to provide for safe accommodation of pedestrians on the new structure. To meet ADA requirements a 1.6-m (5.25-foot) sidewalk would be provided on the north (upstream) side of the bridge structure, with a barrier rail separating the sidewalk from the shoulder.

Traffic would be maintained on the existing bridge and its approaches during construction.

TYPICAL SECTION (WEST APPROACH)



TYPICAL SECTION (EAST APPROACH)



BRIDGE SECTION

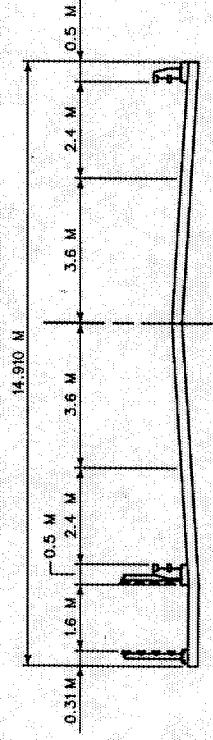


FIGURE 2. TYPICAL SECTIONS

2.0 PURPOSE AND NEED

The purpose of the project is to replace the existing Two Medicine River Bridge with a new structure designed to meet current design standards and the future anticipated needs at the site.

Description of the Existing Bridge.

The existing roadway crosses the Two Medicine River on a seven-span, 232-m- (761-foot)-long deck truss constructed in the early 1940's. The existing deck width is approximately 7.3-m (24 feet) from curb to curb (no shoulders), and the deck elevation crosses the canyon at approximately 45-m (150 feet) above the surface of the water. The bridge is located on a 400-m- (1312-foot)-long sag vertical curve with seven percent grades in and out.

The bridge is classified as structurally deficient. (Based on a 100-point scale, the existing Two Medicine River Bridge has a Sufficiency Rating of 31, as of September 24, 2001. The Sufficiency Rating is a composite of several ratings of individual bridge items that rate the structural condition and geometry of the bridge. Additionally, a bridge with low ratings on the structural condition items will be designated structurally deficient, and a bridge with poor ratings for geometry items will be designated as functionally obsolete.) In addition, recurrent active landslides in the vicinity of the substructure have caused movement of bridge elements.

The most significant deficiencies of the roadway carried by the structure are the lack of shoulders and crash-worthy railings. Because of the structure type of the existing bridge (steel truss), it would not be possible to retrofit the bridge deck to add shoulders and crash-worthy railings without substantial, complex design and reconstruction/rehabilitation of the entire structure. Further, it would not be possible to maintain traffic on the bridge during construction, which would require detours of unacceptable length.

Roadway Characteristics.

The functional classification of the existing two-lane roadway in the vicinity of the project is Rural Principal Arterial, and the existing terrain is classified as rolling. A truck-climbing lane is present, beginning just east of the bridge and continuing to the crest of the hill east of the eastern project limits. There are no separate facilities for pedestrians or bicycles in the area.

The existing roadway alignment consists of a horizontal curve right (approximately 400-m (1300-foot) radius) at the west end of the project, a tangent section across the bridge, and a horizontal curve left (approximately 900-m (3000-foot) radius) at the east end of the project. The vertical alignment consists of seven percent grades down to the bridge from the west and east, a 396-m (1300-foot) sag vertical curve on the bridge, and crest vertical curves of approximately 400-m (1300 feet) and 500-m (1640 feet) at the western and eastern project limits, respectively. The existing alignment geometry does not meet the criteria for a design speed of 100 km/h (62 miles/h). For example, the sag

vertical curve provides only 130-m (426 feet) of stopping sight distance compared to the 185-m (607 feet) required for a 100 km/h (62 miles/h) design speed.

The proposed project would increase roadway width, flatten vertical and horizontal curves, improve sight distance, and flatten side slopes. These improvements would enhance safety and improve driving conditions for the traveling public.

Geotechnical Conditions.

The general area of almost any location crossing of the Two Medicine River southeast of Glacier National Park is marked with numerous landslides and unstable ground, making an unstable crossing location difficult to avoid. A previous old bridge structure crossing about a mile south of the present US 2 bridge was nearer the bottom of the Two Medicine River Gorge but still had attendant roadway cut and fill slope landslides down to the bridge crossing.

The choice of alternate crossing locations for this bridge project is governed more by geotechnical concerns rather than environmental concerns. The location choice as an end result of this, however, would protect the landscape and general environment more and result in fewer future land-slope failures and resulting erosion, less impact on channel stability, and a reduced probability of other possible damage to the environment. Conversely, a poor choice in crossing location, ignoring geotechnical concerns as a primary determining factor, could result in significant environmental impacts as evidenced by the existing and previous crossings of the Two Medicine River by US 2.

Correcting the foundation problems on the existing bridge that result from the on-going movement associated with the landslide activity would require continuous monitoring of the foundations and periodic significant maintenance projects to ensure continued stability. The required maintenance/corrective action would become more and more significant and costly as time goes on and the landslide movement becomes more severe. These maintenance activities would also cause temporary environmental impacts during construction.

Traffic Volumes and Characteristics.

According to the most recent April 1999 traffic studies, the Average Daily Traffic (ADT) across the bridge was 2,610 vehicles. In the design year 2022 the ADT is expected to be 3,870 vehicles. Trucks account for 8.2 percent of the traffic. The design hourly volume is 640 vehicles per hour.

Accidents/Safety.

New approach guardrail, signing, delineation, and a bridge deck overlay were installed at the bridge in October 1998. Prior to the 1998 project, the accident rate and severity rate for all vehicles was significantly (greater than 40%) above the statewide averages. However, the truck accident rate for this section of roadway is 0.32 - significantly less than the statewide average of 1.01. The accident trend, crashes on the bridge or bridge approaches due to loss of control on icy or slushy roadway, was addressed by the 1998 improvement project.

Accident data for 1999 through 2002 indicate the accident rate increased from 1.94 to 2.46, and the severity rate increased from 4.75 to 4.92. There was no marked change in the distribution of accident locations along the corridor or recorded causes (external causes versus driver error/carelessness/impairment).

Relationship to Transportation Planning

The proposed project is on the Statewide Transportation Improvement Plan (STIP) for the Year 2004.

3.0 ALTERNATIVES CONSIDERED

Preliminary alignments were studied throughout the length of the project and were considered for both horizontal and vertical design components. Each was evaluated and refined or rejected based on its ability to meet the project objectives, i.e. to provide a safe and efficient traffic facility with consideration for minimum environmental impact, geotechnical issues, geometrics, maintenance requirements, and a reasonable construction cost. A “No-Build” alternative was also considered and evaluated.

The bridge is located on an active landslide and has experienced stability problems throughout most of its service life. There are numerous other unstable areas present in the project vicinity. Therefore, avoidance of areas of landslide activity was considered the first priority in selection of alternative locations for the new structure.

General alignment corridors that best avoid the numerous areas of landslide activity along both sides of the river canyon were identified by the project geologists. The most suitable locations for the main bridge piers within these corridors were then determined. Specific detailed alignments within these corridors were then developed using the applicable horizontal and vertical geometric design criteria and giving consideration to other engineering and environmental constraints, such as the existing terrain, wetlands, and the Burlington Northern Santa Fe Railroad spur in the northwest quadrant of the project. Whenever possible, attempts were made to keep a tangent alignment throughout the limits of the proposed structure to avoid the complications associated with construction of major bridge spans on curves.

Four alignments were determined to be feasible for development and initial comparison. From south to north they are designated S1, S2, N1, and N2, where S and N indicate whether the alignment is south or north of the existing bridge. These alignments, shown on Figure 3, were each evaluated with multiple bridge types, as described below. (Note that all references below to bridge lengths, spans, structure depths, pier locations, etc. are conceptual only and would be refined during final design.)

Alternative S1. The S1 alignment is the southern-most alignment crossing the Two Medicine River. It crosses approximately 65-m (213 feet) south of the existing bridge.

- **Alignment S1, Concrete Segmental Box Girder Bridge** - The Concrete Box Girder alternate consists of a three-span main unit crossing the river and a three-span approach unit on the east side, for a total bridge length of approximately 540-m (1772 feet) and a main span of 160-m (525 feet).
- **Alignment S1, Steel Truss and Girders** - The steel alternative for the S1 alignment consists of a deck truss for the main unit and continuous steel plate girders for the east approach unit. The total bridge length is approximately 520-m (1706 feet), with a 160-m (525-foot) main span.

Alternative S2. The S2 alignment crosses the Two Medicine River approximately 50-m (164 feet) south of the existing bridge. It is similar to the S1 alignment but provides for a straight main span.

- **Alignment S2, Concrete Segmental Box Girder Bridge** - The Concrete Box Girder alternate consists of a three-span main unit crossing the river and a three-span approach unit on the east side. The total bridge length is approximately 528-m (1732 feet), with a 140-m (459-foot) main span.
- **Alignment S2, Steel Truss and Girders** - This alternative consists of a straight deck truss for the main unit and continuous steel plate girders for the east approach unit. The total length of the bridge is approximately 531-m (1742 feet), with a 140-m (459-foot) main span.
- **Alignment S2, Steel Plate Girder Bridge** – This alternative consists of a four-span bridge approximately 460-m (1509 feet) in total length. The girders may be either haunched or constant depth.

Alternative N1. The N1 alignment crosses the Two Medicine River approximately 55-m (180 feet) north of the existing bridge.

- **Alignment N1, Concrete Segmental Box Girder Bridge** - The Concrete Box Girder alternate consists of a curved three-span main unit crossing the river and a two-span approach unit on the east side. The total bridge length is approximately 508-m (1667 feet), with a 160-m (535-foot) main span.
- **Alignment N1, Steel Girder Bridge** - The Steel Plate Girder alternate consists of a curved four-span main unit crossing the river and a three-span approach unit on the east side. The steel girder is haunched with a depth of approximately 5.5-m (18 feet) at Piers 3 and 4. The remainder of the bridge is a constant depth of 3.3-m (11 feet). The total bridge length is approximately 486-m (1594 feet), with a 110-m (361-foot) main span.

Alternative N2. The N2 alignment crosses the Two Medicine River approximately 265-m (869 feet) north of the existing bridge.

- **Alignment N2, Concrete Arch Bridge** - The Concrete Arch alternate consists of a 130-m (427-foot) concrete arch spanning the river, a six-span west approach unit, and a single span on the east side. The total bridge length is approximately 385-m (1263 feet).
- **Alignment N2, Steel Arch and Girders Bridge** - The Steel Arch alternate consists of a 130-m (427-foot) steel arch spanning the river, a six-span west approach unit, and a single span on the east side. The total bridge length is approximately 386-m (1266 feet).
- **Alignment N2, Steel Slant Leg and Girders Bridge** - The Steel Slant Leg alternate consists of a three-span main unit crossing the river and a three-span approach unit on the west side. The steel girder has a constant depth of approximately 2.8-m (9 feet) for the entire bridge. The total bridge length is approximately 392-m (1286 feet), with a 123.5-m (405-foot) main span.

The Retrofit Alternative. The possibility of retrofitting the existing bridge to correct the deficiencies was evaluated. Because of the structure type of the existing bridge (steel truss), it would not be possible to retrofit the bridge deck to add shoulders and crash-worthy railing without substantial, complex design and reconstruction/rehabilitation of the entire structure. The bridge would still be subject to landslide activity present at its

existing location. Also, it would not be possible to maintain traffic on the bridge during construction, which would require detours of unacceptable length to the traveling public. Therefore, this alternative was eliminated from further consideration.

The No-Build Alternative. The “No-Build” Alternative was also evaluated. However, it would not meet any of the objectives described in Section 2.0, “Purpose and Need”. The bridge would still be subject to landslide activity present at its existing location, and its overall structural condition would continue to deteriorate. Also, the existing substandard vertical and horizontal curves would remain, as would the lack of shoulders on the bridge. Therefore, this alternative was eliminated from further consideration.

Evaluation of Alternatives.

The four build alignment alternatives were compared considering the following criteria: geotechnical issues, alignment geometry, community impacts, capital cost, maintenance, wetland impacts, and aesthetics. As discussed in the following paragraph, the results of the comparison indicated that Alternatives S2 and N2 were the most feasible, and Alternatives S1 and N1 should be dropped from further consideration.

Alternative N1 falls far short of the others primarily due to the geotechnical concerns, which also translates into significantly higher capital costs. Alternative S1 drops out of the comparison because it impacts the southwest property owner more (3.24 hectares (8.01 acres) versus 2.01 hectares (4.97 acres)) and has less desirable horizontal geometry than S2 and because it has more potential geotechnical concerns than N2. The N2 Steel Slant Leg and Girders Bridge Alignment was also eliminated from further evaluation because of aesthetic reasons.

After the initial screening of alternatives, a preliminary geotechnical investigation was performed at the site, including four borings and two groundwater observation wells at critical locations on Alignments S2 and N2. The results of this investigation indicated that the geotechnical conditions at N2 were much worse than expected based on the preliminary study, whereas the conditions at S2 were better than anticipated. This results in a significant increase and decrease, respectively, in the estimated capital costs of N2 and S2. Local climate conditions impact on facility maintenance is also a concern with Alternative N2 because of the road geometry, particularly the superelevations (N2 has a 395-m (1300-foot) radius with 8% superelevation, whereas S2 has a 950-m (3120-foot) radius with 5% superelevation). Finally, Alternative N2 results in a significant impact on the adjacent property owners (9.00 hectares (22.2 acres) required for N2 versus 2.03 hectares (5.02 acres) for S2; also for N2, the proposed structure would be located within 30-m (100 feet) of the residence located in the northwest quadrant compared to the 245-m (800-foot) current separation).

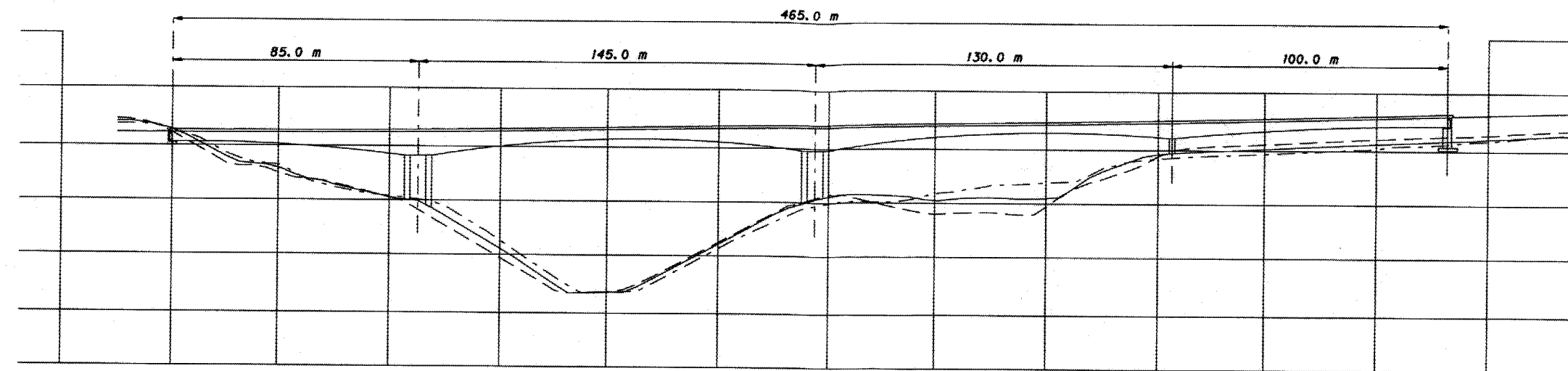
After consideration of the foregoing information, Alternative S2 is proposed as the preferred alternative for its lower cost and lesser impact while providing for a safe, aesthetic, and improved facility for the traveling public.

The Preferred Alternative (S2) - Widen the roadway to provide two 3.6-m (12-foot) travel lanes and 2.4-m (8-foot) shoulders, with a 3.6-m (12-foot) truck-climbing lane beginning east of the bridge and extending to the eastern project limits. Widen the bridge to include two 3.6-m (12-foot) travel lanes with 2.4-m (8-foot) shoulders. Improve horizontal and vertical alignments to provide for a 100km/h (62 miles/h) design speed. Provide a 1.6-m (5.25-foot) sidewalk on the north (upstream) side of the bridge structure, with a barrier rail separating the sidewalk from the shoulder.

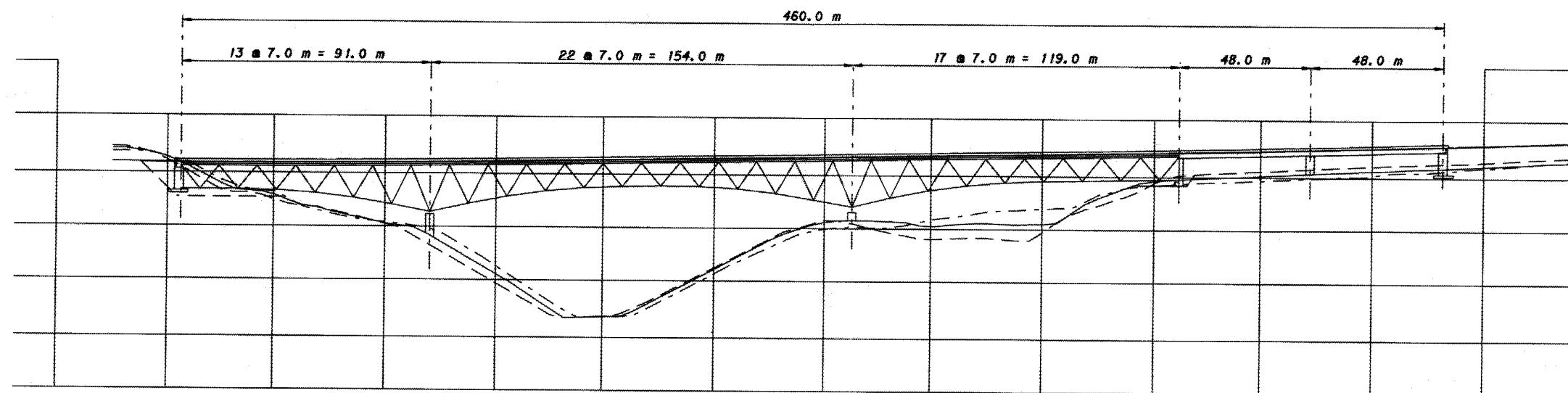
As discussed later in this document (Section 4.18), Montana Senate Bill 3 (SB 3) has directed that MDT begin planning for the eventual construction of a four-lane highway generally along the present route of US 2 from the North Dakota border to the Idaho border. At this time there are no indications that a four-lane bridge is required or justified at this location. However, the Preferred Alternative has been developed so that it does not preclude the future expansion of this area of US 2 to four lanes by construction of a second, parallel structure.

The bridge structure type alternatives associated with Alignment S2 are illustrated in Figure 4. The preliminary span arrangements shown in Figure 4 for each type of bridge are approximate and were developed assuming that a design exception would be obtained to permit the use of a 5% grade on the east approach. (See Appendix C for analysis and justification of this design exception.) Should the design exception not be approved, the vertical alignment of S2 would be modified to meet the appropriate criteria. However, this would not result in any additional environmental impacts, and Alignment S2 would still be the Preferred Alternative.

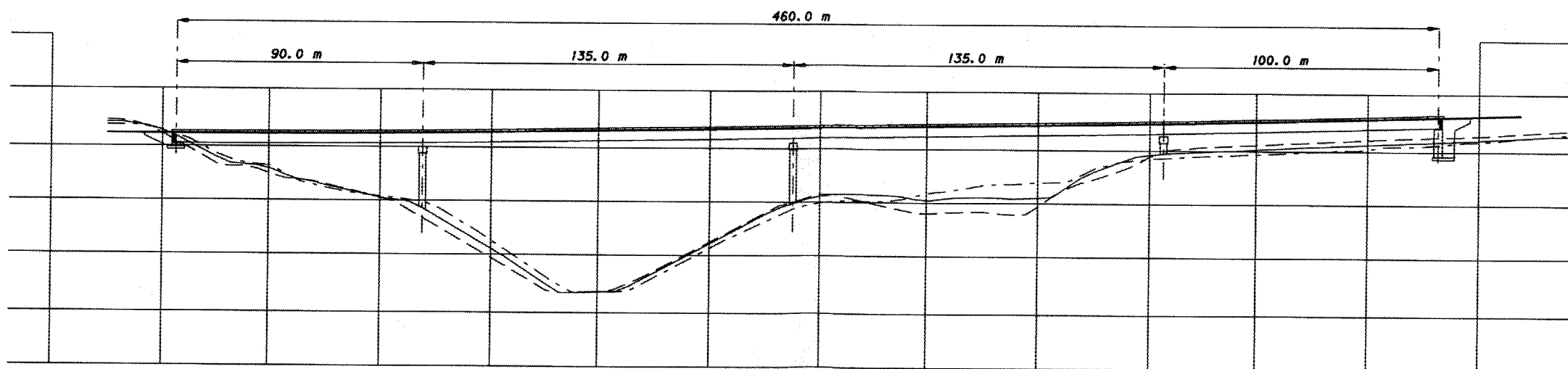
Removal of Existing Bridge. The existing bridge would be removed in accordance with all applicable laws and regulations. MDT would specify general removal criteria, and the contractor would submit a removal plan for review and approval.



CONCRETE SEGMENTAL BOX GIRDER



STEEL TRUSS AND GIRDERS



STEEL PLATE GIRDER

FIGURE 4. STRUCTURE TYPE ALTERNATIVES

4.0 AFFECTED ENVIRONMENT AND IMPACTS

The following sections discuss existing conditions and potential impacts of the preferred alternative. Urban impacts were not found in the study area due to the rural setting of the proposed project. Only those issues with a reasonable possibility for individual or cumulative impacts are assessed under this section.

4.1 Social and Economic/Environmental Justice

The project is located on the Blackfeet Indian Reservation. The following is a summary of the population of Glacier County surrounding the project area by race and/or national origin, based on 1990 U.S. Census Data.

White	5,270
Black	6
Asian & Pacific Islander	27
American Indian, Eskimo, Aleut	6,807
Hispanic (any race)	97

In 1998 the Montana Department of Commerce reported that per capita personal income in Glacier County had risen to \$15,374, which represents a 12 percent increase over a five-year period. The per capita personal income for Montana in 1998 was \$21,229, which is about 78 percent of the national average. The unemployment in Glacier County in 1990 was 17 percent, which is almost double the 8.6 percent from 1980 and more than double the Montana statewide average of seven percent.

No concentrations of minorities and/or low-income groups have been identified within the immediate vicinity of this proposed action's project area. Executive Order No. 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations has been observed for this project. Implementation of the preferred alternative would not create disproportionately high and/or adverse effects on the health or environment of minority and/or low-income populations. The proposed project is in compliance with the provisions of *Title VI of the Civil Rights Act of 1964* (42 U.S.C. 200d).

The proposed action would not have any significant impact on the location, distribution, density, or growth rate of the area's population because it is not adding additional capacity or substantially changing the existing alignment. Overall, the Preferred Alternative would be an improvement to the public road and bridge system in the area. It provides a safer and more efficient facility for all road users.

4.2 Land Use/Relocation

Glacier County has no comprehensive plan or land use planning policy. The land use in the project area is rural, low-density, residential and agricultural land that is either cultivated for hay production or used as pastureland. The entire project is located within the Blackfeet Indian Reservation. Land use patterns are expected to remain unchanged by this proposed action.

There are no residences, businesses, or other structures that would require relocation. The proposed alignment has been selected to specifically avoid residences located adjacent to the north side of the existing highway. Access will be provided to adjacent properties but may be different than what exists now.

An estimated 2.39 hectares (5.91 acres) of additional right-of-way would be needed for the Preferred Alternative.

The construction of the Preferred Alternative would not increase the rate of development, cause major changes to adjacent land uses, or contribute to unplanned growth in the project area because it is not adding additional capacity or substantially changing the existing alignment.

4.3 Parks and Recreation

Specifically designated recreation facilities do not exist along the proposed project. East Glacier, approximately 0.4 km (0.25 mile) west of the project, is a gateway to Glacier National Park. The National Park offers a number of recreational opportunities including hiking, camping, and wildlife viewing. The Preferred Alternative would improve access and safety conditions to the park.

Because there are no publicly owned parks or recreation areas adjacent to the Two Medicine River Bridge, there are no park and recreation properties that need to be evaluated under *Section 4(f)* of the *U.S Department of Transportation Act*. In addition, there are no properties purchased with funds from the Land and Water Conservation Act adjacent to the Two Medicine River Bridge. Therefore, no properties need to be evaluated under *Section 6(f)* of that Act.

4.4 Pedestrians and Bicyclists

Due to a lack of viable roadway shoulders in the vicinity of the project, US 2 does not currently provide a safe or otherwise optimal travel course for pedestrians or bicyclists. This discourages, but does not eliminate, regular walking, hiking, and bicycling along the roadway. Despite the lack of any existing facilities or improvements, motorists park their vehicles on the side of the road and get out to walk along the edge, down into the canyon, and out on the bridge. The sidewalk on the Preferred Alternative would improve safety and access for pedestrians on the bridge. The proposed 2.4-m (8-foot) shoulders would improve safety for bicyclists throughout the length of the project. Also, the proposed typical section for the roadway approaches would be consistent with the long-term intent to provide 2.4-m (8-foot) shoulders throughout the US 2 corridor.

4.5 Historical/Cultural/Archaeological Resources

The Cultural Resources Inventory and Assessment performed in May 2000 confirmed that there are no historical, cultural, or archaeological resource sites within the project limits which are considered eligible for the National Register of Historic Places (NRHP), with the exception of the existing bridge itself, as discussed below.

4.6 Programmatic Section 4(f) Evaluation /Adopt a Bridge Program

This proposed action is under the provisions of *Section 4(f)* of the *U.S. Department of Transportation Act* (49 USC 303), as amended. These provisions apply to Federally-funded transportation actions that affect sites on or eligible for the NRHP, a publicly-owned park, recreation area, and/or wildlife/waterfowl management area. The Preferred Alternative would remove the existing Two Medicine River Bridge.

In 1983 the FHWA developed a “Nationwide” Programmatic *Section 4(f)* Evaluation for proposed projects affecting historic bridges that are on or eligible for the NRHP. The historic Two Medicine River Bridge falls under MDT’s Programmatic Memorandum of Agreement on Historic Roads and Bridges. A copy of this proposed project’s completed “Nationwide” Programmatic *Section 4(f)* Evaluation form for Historic Bridges is included in Appendix A along with a signed letter of concurrence from the Montana State Historic Preservation Office (SHPO). The proposed project would not impact any other *Section 4(f)* sites such as publicly-owned parks, recreation areas, or wildlife/waterfowl management areas.

The Highways Bridge Replacement and Rehabilitation Program for Historic Bridge Preservation requires states proposing the demolition of a historic bridge as part of a replacement project (under USC 144(o)(4)) to “...first make the bridge available for donation to a (state or local agency) or responsible private entity if (same agency or entity) enters into an agreement to:

- (A) maintain the bridge and features that preserve its historic significance; and
- (B) assume all future legal and financial responsibility for the bridge, including an agreement to hold the state’s transportation agency harmless in any liability action.”

The MDT issued a NOTICE for preservation of the Two Medicine River Bridge in accordance with this Historic Bridge Preservation Program. No qualified entity or agency has come forward to adopt the bridge.

4.7 Prime and Unique Farmland

There are no prime or unique farmlands in the project area. However, agricultural activities in the project area include cultivation for hay production and grazing.

4.8 Geology and Slope Stability

Local Geology

The geologic units that exist in the project area consist of, from oldest to youngest:

- Upper Cretaceous Marias River Shale
- Pleistocene Two Medicine Valley glacial deposits
- Holocene colluvium and landslide debris

The Upper Cretaceous Kevin Member of the Marias River Shale (formerly named the Colorado Shale) comprises the steep slopes of the Two Medicine Gorge area, in the vicinity of the US 2 Bridge. The Kevin Member consists of dark-gray marine shale containing scattered thin sandy partings, numerous thin layers of bentonite, and many

beds of calcareous concretions. Complex folding and thrust faulting within this unit exists, with bedding orientations varying substantially over tens of meters, both vertically and laterally.

A thin veneer of glacial till, mapped in the area as Two Medicine Valley till, caps the shale on both sides of the gorge. The till thickness ranges from zero to three meters (10 feet) and is comprised of slightly clayey, gravelly, sandy silt and slightly silty gravelly sand with abundant cobbles. Scattered boulder erratics are present within the pasture areas. Based on standard penetration tests, the density or consistency of the till is medium dense or medium stiff to stiff.

Colluvium mantles most of the slopes within the project area. Colluvium is the loose to medium dense or soft to stiff soil derived from in-place weathering of the shale bedrock unit or mass wasting. Because it is deposited by gravity processes such as soil creep, surficial sloughing, landsliding, and slope wash, grain size can vary from clay and silt to boulder-size. The rate of movement of this material can range from slow creep (the imperceptible movement of only inches per year or less) to catastrophic landslides. Soil creep in the upper few feet of soil on a slope is commonly reflected in the bowing of trees on the slope.

In the vicinity of the existing bridge, the subsurface materials consist generally of weathered (decomposed) to unweathered, dark gray shale with variable fracturing overlain by variable thicknesses of brown to gray, silty clay fill or residual soils with sand and gravel. Within the shale are abundant brecciated and slickensided zones, as well as zones of light gray, silty clay gouge.

Slope Stability

The alignment and proposed pier locations avoid several landslide areas that are present on the east side of the gorge. On the west side, the proposed alignment crosses two deep-seated landslides that are located south of the existing west bridge abutment and form two prominent bowl-shaped depressions.

For each bridge type, the western abutment would be situated at a stable location, west of the top of the southernmost landslide, and would not be affected by the landslide. The second pier for each bridge type would be located at the far eastern/downhill end of the second landslide area. This area experiences slow rotational slumping and shallow surface sliding due to weak soils and a high groundwater level in the bowl at a depth of about five meters (16 feet). The annual rate of movement is conservatively estimated to be 4.3-mm (0.17 inches) per year, or a total of 32-cm (one foot) over the 75-year life of the bridge. The proposed bridge pier foundation would incorporate drilled shafts designed to withstand the loads associated with this movement.

The stability and durability of the steep face of the gorge was evaluated to further assess the stability of the proposed structure. Compared to other shale deposits, the slake durability of the Marias River Shale at this location was found to be very favorable and durable with respect to resistance to wetting and drying and freeze-thaw. The surface

degrades by freeze/thaw, wetting and drying, and surface erosion, at a rate conservatively estimated at approximately 10-mm (0.4 inches) per year, or a total of 75-cm (30 inches) over the 75-year life of the bridge. This minimal anticipated movement would be accommodated in the foundation design of the proposed structure.

The potential for significant future meandering of the river channel was also assessed. The Two Medicine River is serpentine in plan view. There are sharp meander bends located a few hundred meters upstream and about 100 meters (330 feet) downstream; however, the reach in which the proposed bridge would be located is relatively straight. There is no evidence of any significant channel migration occurring at this location or within an area approximately 700 meters (2,300 feet) upstream to 300 meters (1,000 feet) downstream.

Since the bridge piers would be located well above the floodplain, the only scour or meander potential due to this project would be associated with the long-term degradation potential of the shale bedrock of the channel itself. The shale bedrock along the channel is somewhat erodable, but the long-term degradation potential of the channel bend is small. Over the 75-year design life of the bridge, a long-term degradation potential of one meter (three feet) is likely a conservatively high estimate.

4.9 Air Quality

This proposed project is in an unclassifiable/attainment area of Montana for air quality under 40 CFR 81.327, as amended. As such, this proposed project is not covered under the U.S. Environmental Protection Agency's Final Rule of November 24, 1993 on Air Quality conformity. Therefore, this proposed project complies with *Section 176(c)* of the *Clean Air Act* (42 USC 7521(a)), as amended.

There are no long-term impacts associated with air quality as a result of the Preferred Alternative. The Preferred Alternative would have minimal short-term impacts due to anticipated construction activities near the project area. Temporary impacts may include short-term increased emissions as a result of construction-related traffic and increases in particulate emissions from ground disturbances.

Short-term mitigation for construction impacts would include dust palliatives, stabilized soil stockpile areas, and revegetation of exposed areas.

4.10 Noise

There are no receptors within approximately 150-m (500 feet) of the proposed bridge replacement project since the land adjacent to the proposed project is undeveloped and FHWA Noise Abatement Criteria are not applicable. MDT Noise Policy does not require a noise analysis for projects without existing or proposed receivers within 90-m (300 feet) of the centerline.

The operation of construction equipment may create undesirable noise conditions, however, there are no noise receptors in the immediate vicinity of the project. Construction noise may have a short-term impact on wildlife in the area.

4.11 Water Resources/Quality

The Two Medicine River is located in the Marias watershed in the bottom of a deep canyon about 45-m (150 feet) below the existing bridge deck. It is fed by snowmelt from Glacier National Park to the west and comprises one of the tributaries within the Missouri River drainage basin. The river flows south across the project site. Within the project site the Two Medicine River is characterized by a high gradient channel that is confined by very steep banks.

The Preferred Alternative would have minimal short-term impacts due to anticipated construction activities around the river. These activities include construction of piers and abutments. Because the proposed structure spans the entire river channel, placement of piers in the water would not be required.

The Preferred Alternative would also have minimal long-term impacts because of the increased area of impervious surface due to the wider bridge deck. However, this would not result in a significant increase in surface runoff. Drainage from the existing bridge deck currently discharges directly into the river. The Preferred Alternative would prevent discharge of untreated roadway runoff into the river by not locating deck downspouts in the portion of the bridge that spans the river itself. (A preliminary analysis has determined that approximately eight deck drains with MDT standard inlet grates would effectively drain the bridge deck. Erosion protection would be provided where the deck drainage free fall distance is less than 7.6m (25 feet).) Also, the proposed roadway approaches would drain to side ditches with riprap check dams with filter fabric cores. These would filter the roadway runoff and would provide a barrier to allow for the capture of a potential pollutant spill from over 90% of the roadway surface within the project limits.

An Erosion Control Plan for the proposed project would be submitted to the Montana Department of Environmental Quality (MDEQ's) Water Quality Division in compliance with their Montana Pollutant Discharge Elimination System Regulations (ARM 16.20.1314). Best Management Practices (BMPs) would be included in the design of this plan using the guidelines as established in MDT's Highway Construction Erosion Control Work Plan. The objective is to minimize erosion of disturbed areas during and following construction of the proposed project.

In accordance with 7-22-2152 and 60-2-208 M.C.A., MDT would reestablish a permanent desirable vegetation community along all areas disturbed by the proposed construction. A set of revegetation guidelines would be developed by MDT that must be followed by the contractor. The Seeding Special Provisions developed for this proposed project would be forwarded to the Glacier County Weed Board for approval.

4.12 Wetlands

Project area wetlands were delineated in accordance with the Army Corps of Engineers 1987 Wetland Delineation Manual. A total of four wetlands was identified within the project area. Locations of the four wetlands (A through D) delineated within the site are shown in Figure 5, and photographs of each are included in Figure 6. The wetland resource inventory is found in the Biological Resources Report (under separate cover). The only wetland impacted by the Preferred Alternative is Wetland D.

Wetland D is a perched meadow that is used for grazing, located in the southwest quadrant of the bridge project area. The meadow is approximately 0.34 hectares (0.85 acres).

Riparian grasses are the dominant herbaceous species in the wetland. Quaking aspen and Engelmann spruce are the dominant trees, and various willows are the dominant shrub species. Wetland D is classified using the Cowardin system as a palustrine, scrub-shrub wetland (Cowardin et al. 1979). Based on the HGM classification (according to Brinson), the wetland is a depression (open surface water). The wetland is rated low to moderate for functions and values, and its overall analysis area rating is III. The total estimated impact on Wetland D is 0.006 hectares (0.015 acres) for the concrete box bridge type, 0.013 hectares (0.032 acres) for the steel truss bridge type, and 0.001 hectares (0.003 acres) for the steel plate girder bridge type.

Executive Order 11990 states that projects should "...avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands where there is a practicable alternative..."

The Preferred Alternative has been designed to avoid, if possible, or minimize disturbance and impacts to identified wetlands. Due to the landslide conditions in the canyon there are no practicable alternatives to entirely avoid wetland impacts from pier placement for the bridge. The proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

Unavoidable wetland losses would be minimized by implementing conservation measures during construction. Specific mitigation would include:

- Flag wetland areas to avoid unnecessary disturbance due to construction activities.
- Minimize vegetation removal/disturbance.
- Rapidly revegetate exposed areas with ground covers to inhibit invasion of noxious weeds and for aesthetic purposes.
- Provide bank stabilization and erosion control to meet standards defined by *MDT Highway Construction Standard Erosion Control Plan*.
- Implement sedimentation control methods along drainage routes.
- Contractor adherence to MDT's BMPs relating to water quality and the handling of fuels and other contaminants common to staging areas.

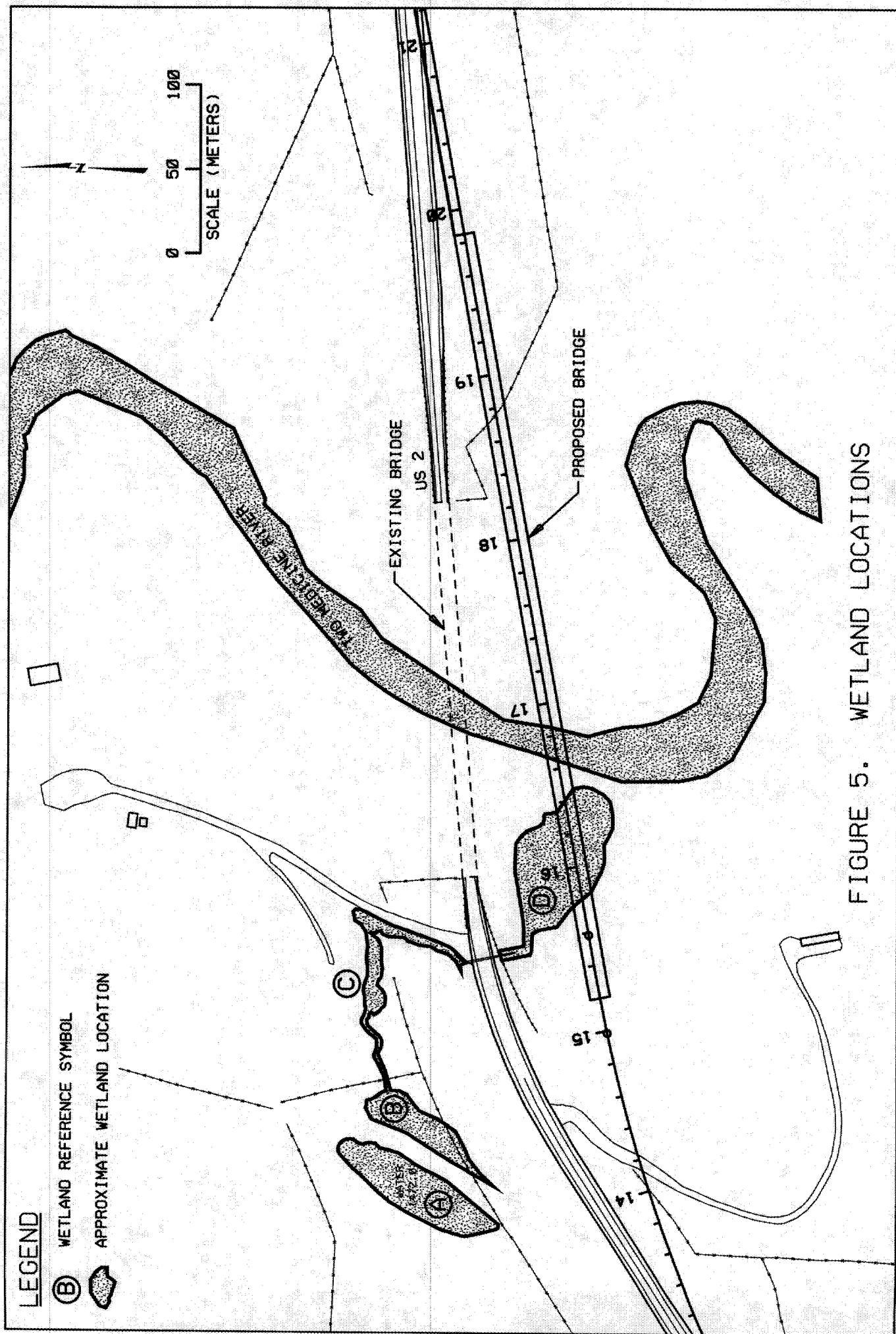


FIGURE 5. WETLAND LOCATIONS

FIGURE 6 - WETLANDS
TWO MEDICINE RIVER BRIDGE SITE



Wetland A



Wetland B



Wetland C



Wetland D

4.13 Fish, Wildlife, and Threatened or Endangered Species

Information pertaining to endangered, threatened, sensitive, and rare wildlife and vegetative species was sought from the U.S. Fish and Wildlife Service (USFWS), the Montana Natural Heritage Program, and Blackfeet Nation biologists.

Based on discussions with Ira Newbreast (Blackfeet Nation), peregrine falcons occur as seasonal migrants along with bald eagles in the project area. Current records indicate that nesting and rearing activities occur at a considerable distance from the project area, and it is not considered critical habitat or recovery area. An occasional osprey has also been observed in the project area.

The west slope cutthroat trout is a sensitive species and a candidate for listing. West slope cutthroat trout are present in Midvale Creek (approximately 1 km (0.6 miles) northwest of the project site); however, electroshocking has not produced any evidence of west slope cutthroat trout in the Two Medicine River in the vicinity of the bridge. The fish species present include whitefish, rainbow and brook trout (USFWS, Robin Wagner), none of which are rare or sensitive species.

The USFWS (2000a) lists bald eagle, grizzly bear, and Canada lynx as threatened species that may be present in the project area. In addition the endangered gray wolf may be present in the project area.

- Bald eagles occur as seasonal migrants in the project area. However, there are no known nests in the immediate project area, with the closest nest being found near the Lower Two Medicine Lake located several kilometers northwest of the project site.
- The grizzly bear does use the Two Medicine River as a travel corridor, and there are food sources in the area. Associated wetlands in the vicinity of the bridge are not considered critical habitat.
- An occasional transient Canada lynx is seen in the project area, but no known dens exist in the area.
- An occasional transient gray wolf has been seen in the project area, but the existence of a pack has never been substantiated.
- No threatened and endangered plant species were listed in the project area.

A Biological Assessment was prepared and recommends the following effect determinations:

- **no jeopardy** on the west slope cutthroat trout
- **no effect** on the bald eagle
- **not likely to adversely affect** the grizzly bear or its critical habitat
- **no effect** on the Canada lynx
- **no effect** on the gray wolf

4.14 Visual

Within the project area, US 2 contains broad panoramic vistas with the magnificent Rocky Mountains seen when traveling west. The roadway alignment is rolling, and travelers heading in either direction are exposed to natural pastoral fields.



The bridge crossing over the Two Medicine River is scenically spectacular. The deep river canyon and views of the Burlington Northern Santa Fe Railroad bridge to the north are among the most often photographed locations on the Blackfeet Indian Reservation.



The existing Two Medicine River Bridge, constructed between 1940 and 1942, is an excellent example of a deck truss bridge.



Short-term visual impacts include:

- Dust and debris associated with construction activity
- Construction equipment and excavated material associated with construction in the staging areas
- Removal of vegetation

Long-term visual impacts include:

- An expanded pavement width
- Fill slopes which would change the existing landform immediately adjacent to the roadway edge

The Preferred Alternative, crossing just 50-m (164 feet) south of the existing bridge, would provide much the same views as the existing Two Medicine River Bridge, and any of the three bridge types would be aesthetically pleasing.

4.15 Utilities

Three Rivers Telephone Company's buried telephone line is located south of the existing roadway alignment, generally following the south right-of-way line for the full length of the project except in the vicinity of the existing bridge where the line swings north, then is carried across the bridge structure.

An AT&T fiber optics line generally follows the south right-of-way line of the existing roadway alignment and is carried across the existing bridge structure.

The telephone and fiber optic lines that are currently carried on the existing bridge would require relocation when the bridge is removed. The Preferred Alternative also impacts

the telephone and fiber optic lines at two other locations, but relocation to avoid the new bridge and roadway approaches should not be difficult.

Glacier Electric has a power substation located adjacent to the south right-of-way line at the eastern project limit. Glacier Electric also has overhead power lines at several locations within the project limits. Overhead lines cross US 2 (perpendicularly) approximately 485-m (1591 feet) west of the existing bridge and again (at a skew) approximately 465-m (1526 feet) east of the bridge. In the northeast quadrant of the project, the power lines run in a northwesterly direction (outside the existing right-of-way) to where they cross the river canyon approximately 260-m (853 feet) upstream of the existing bridge. In the southeast quadrant, the power lines run from the substation in a southwesterly direction to where they cross the river canyon more than 200-m (656 feet) south of the existing bridge. An underground power line runs along the north side of the roadway from the east end of the bridge to the MDT Weather Station located opposite the power substation at the eastern project limits.

The Glacier Electric overhead line crossing at the western project limit would not be impacted. The line crossing the east approach would be impacted by the Preferred Alternative because the elevation of the new road would be one to two meters (four to seven feet) higher than the existing pavement. Raising the line to provide the required clearance would be required. The overhead line in the southeast quadrant would not be impacted by the alignment.

East Glacier Water and Sewer District reports a two-inch waterline that crosses under the existing bridge, approximately 25-m (82 feet) east of the west abutment, running between the residences located in the northwest and southwest quadrants of the project. The East Glacier waterline would likely be impacted and would require relocation.

4.16 Hazardous Substances

An Initial Site Assessment for hazardous materials/substances was conducted in June 2000. There are no known hazardous substances or hazardous wastes in the proposed project's area. The contractor would be required to take precautions to minimize the effects of construction operations and to prevent leakage or spilling of fluids from equipment.

4.17 Permits Required

The following permits would be required for the Preferred Alternative and would be acquired prior to any relevant disturbance:

An Aquatic Lands Protection Ordinance (ALPO) permit would be required from the Blackfeet Tribe.

A Notice of Intent (NOI) for Storm Water Discharges under the National Pollutant discharge Elimination System (NPDES) General Permit (P.L. 92-500) would be required with the U.S. Environmental Protection Agency for the control of water pollution for both specific and non-point sources.

This proposed project would require the following under the *Clean Water Act* (33 U.S.C. 1251-1376)

- A *Section 404* permit from the U.S. Army Corps of Engineers (COE). The COE would be notified that this proposed project qualifies for a “Nationwide” 404 permit under the provisions of 30 CFR 330.

All work would also be in accordance with the *Water Quality Act* of 1987 (P.L. 100-4), as amended.

4.18 Secondary and Cumulative Impacts

Secondary (or indirect) effects are those that are caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable. Secondary impacts are generally induced by the initial action and comprise a wide variety of effects such as changes in land use, water quality, economic conditions, or population density. The secondary impacts of this proposed project are addressed in appropriate sections of this Part.

Cumulative impacts are those effects that result from the incremental consequences of an action when added to other past and reasonably foreseeable future actions regardless of what agency (federal or non-federal) undertakes such actions.

Projects under construction or planned by MDT in the vicinity were reviewed to help assess the cumulative impacts of this project. MDT currently has one project planned near the Two Medicine Bridge project. The East Glacier – West project is a rural resurfacing project with a ready date of December 1, 2004. It should be noted that the availability of funding could affect the timing of implementation for this project.

Senator Sam Kitzenberg of Glasgow has been a leading advocate for the “4 for 2 Plan” that would significantly upgrade US 2 across the Hi-Line of Montana as a means of increasing tourism and stimulate economic development. During the 2001 Legislature, Senator Kitzenberg introduced Senate Bill 3 (SB 3) that directed MDT to begin planning for the eventual construction of a four-lane highway generally along the present route of US 2 from the North Dakota border to the Idaho border. SB 3 was passed by the Legislature and signed by the Governor in April 2001.

As a result of SB 3, MDT has initiated work on an Environmental Impact Statement (EIS) to examine the social, economic, and environmental effects of reconstructing a section of US 2 from a two-lane facility to a four-lane roadway between Havre and Harlem. The Havre-Harlem EIS should be completed by the end of 2003.

A review of planned highway projects in the East Glacier area shows that one resurfacing project is scheduled following the planned implementation date for the Two Medicine River Bridge project.

Because MDT's other active and planned reconstruction projects are not contiguous with the proposed work areas within the Two Medicine River Bridge project and would not generally occur at the same time, the cumulative environmental impacts of these projects on the proposed project would be minor. Similarly, the proposed improvements within the Two Medicine River Bridge project area would not be expected to produce any significant cumulative environmental impacts on other proposed projects in MDT's Great Falls District.

Although the East Glacier – West project occurs in the same general area, the planning, design, and construction would occur independently. Implementing the Two Medicine River Bridge project would not trigger the need for improvements to other adjoining segments of US 2 in the project area. Likewise, implementation of other road projects within Glacier County would not prohibit the Two Medicine River Bridge project from being constructed.

MDT would continue to coordinate future projects with the public and other appropriate agencies, complete a review of potential impacts to the environment, and identify requirements for mitigation of any adverse effects as projects are developed and implemented.

Future growth in the project area, Glacier County, or adjoining counties would likely be driven by factors other than replacing this bridge on US 2. Such factors are primarily related to the national and global economic conditions and the price of energy. For these reasons, it is impossible to predict what types of impacts might occur. It is certain that such development, should it occur, would happen independently of the bridge project.

There are no known projects being proposed or undertaken by others in the immediate Two Medicine River Bridge project area.

4.19 Irreversible and Irretrievable Commitment of Resources

Implementation of the Preferred Alternative would involve a commitment of a range of natural, physical, human, and fiscal resources. Land that would be used in the construction of the Preferred Alternative would be considered an irreversible commitment during the time period that the land is used for a highway facility. However, if a greater need for use of the land were to arise, or if the highway facility were no longer needed, the land would be converted to another use. At present, there is no reason to believe such a conversion would ever be necessary or desirable.

Minor amounts of fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material would be expended in the construction of a build alternative. Additionally, minor amounts of labor and natural resources would be used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply, and their use would not have an adverse effect on continued availability of these resources. Any construction would also require a substantial expenditure of both state and federal funds which are not retrievable and would require allocation of funds which may be used by other projects.

5.0 COMMENTS AND COORDINATION

5.1 Agency Coordination

The following agencies and parties were contacted in preparing this Environmental Assessment:

- Bureau of Indian Affairs
- National Park Service – Glacier National Park
- U.S. Fish & Wildlife Service
- U.S. Army Corps of Engineers
- Natural Resource and Conservation Service
- Federal Highway Administration
- Montana Department of Environmental Quality
- Montana Department of Natural Resources & Conservation
- Montana Natural Heritage Program
- Montana State Historic Preservation Office
- Blackfeet Tribal Headquarters
- Glacier County Planner

An Interdisciplinary (ID) Team was made up of cooperating agencies with jurisdiction by law and other agencies with needed expertise. The purpose of the ID Team is to provide advice and technical direction. The ID Team met twice during the environmental evaluation process and was made up of members of the following organizations:

- Montana Department of Transportation
- Federal Highway Administration
- Blackfeet Indian Tribe
- Bureau of Indian Affairs
- U.S. Fish & Wildlife Service
- National Park Service

Three briefings were given to the Blackfeet Tribal Council in Browning.

5.2 Public Involvement

Initial Public Information Meeting. On June 21, 2000, a public meeting was held in Browning, Montana, to gather input on the Two Medicine Bridge Replacement project. The purpose of the meeting was to describe the study process, introduce the study team, discuss and obtain input to project goals and objectives, and respond to issues and questions. The meeting was held from 6:00 p.m. to 8:00 p.m. at the Eagle Shield Center. Eight people attended the meeting.

Second Public Information Meeting. On November 29, 2000 a public meeting was held in East Glacier, Montana, to gather input on the Two Medicine River Bridge Replacement project. The purpose of the meeting was to discuss and obtain input regarding the initial set of alternatives and the preliminary environmental analysis and to

respond to questions/issues. The meeting was held from 6:00 to 7:15 p.m. at the East Glacier Woman's Club. Seventeen people attended the meeting.

Meeting minutes and written comments are contained in Appendix B.

Remaining Public Involvement

An environmental public hearing will be held, and comments will be reviewed on the EA and the hearing.

6.0 REFERENCES

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Newbreast, Ira. 2000. Personal communication (telephone conversation with Laura Cooper, Sverdrup Civil, Inc., regarding threatened and endangered species in the vicinity of the project site). Blackfeet Tribe, Browning, Montana.

Sverdrup Civil, Inc. September 2000. Alignment Screening Analysis Report.

Sverdrup Civil, Inc. October 2000. Preliminary Roadway Design Report.

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U.S. Army Corps of Engineers. 1987. Corps of Engineers wetlands delineation manual. Wetlands research program technical report Y-87-1. AD/A176 734. U. S. Army Corps of Engineers, Waterway Experiment Station, Environmental Laboratory, Vicksburg, Mississippi.

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Montana Agricultural Experiment Station. Government Printing Office, Washington D.C.

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U.S. Department of Transportation, *DOT Order 5680.1, DOT Order to Address Environmental Justice in Minority Populations and Low-Income Populations*, February 3, 1997 [Federal Register: April 15, 1997 (Volume 62, Number 72)].

U.S. Fish and Wildlife Service (USFWS). 1988. National wetland inventory map. UTM Zone 12. 1:27,428. U.S. Department of the Interior, fish and Wildlife Service.

USFWS. 2000a. Agency correspondence on the presence of endangered and threatened species of plants and wildlife near the project site. U.S. Fish and Wildlife Service Montana Field Office.

USFWS. 2000b. Federally Listed Animals and Plants in Montana. Internet Web Site.

U.S. Geologic Survey. Topographic map. East Glacier Park, Mt quadrangle. 1:24,000. USGS 1968

Wagner, Robyn. 2000. Personal communication (telephone conversation with Laura Cooper, Sverdrup Civil, Inc., regarding threatened and endangered species in the vicinity of the project site). USFWS, Lewistown Field Office, Lewistown, Montana.

Weatherwax, Mary Claire. 2000. Personal communication (meeting with Laura Cooper, Sverdrup Civil, Inc., regarding wetlands in the vicinity of the project site). Blackfeet Tribe, Browning, Montana.

The White House, Washington, *Memorandum for All Heads of All Departments and Agencies*, Re: Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. February 11, 1994. Washington, D.C.

APPENDIX A

**“NATIONWIDE” PROGRAMMATIC SECTION 4(f)
EVALUATION FOR HISTORIC BRIDGES**

MONTANA DIVISION

"NATIONWIDE" PROGRAMMATIC SECTION 4(f) EVALUATION FOR
HISTORIC BRIDGES

Project # BR-1-3 (42) 210 – Control No. 3886

Date: February 2003

Project Name: Two Medicine River Bridge Replacement

Description: The existing alignment crosses the Two Medicine River on a seven-span, 232-meter long deck truss constructed in the early 1940's. The existing deck width is approximately 7.3 meters from curb to curb (no shoulders), and the deck elevation crosses the canyon at approximately 45 meters above the surface of the water. The bridge is located on a 400-meter long sag vertical curve with seven percent grades in and out. The horizontal alignment at the bridge is a tangent section between a horizontal curve right on the west approach and a horizontal curve left on the east approach.

The bridge is classified as structurally deficient and is eligible for replacement.

Location: The project is located on US Route 2 in Glacier County on the Blackfeet Indian Reservation, about 20 km west of Browning and 1 km east of East Glacier. The existing Two Medicine River Bridge is located at about Reference Post 210, Section 18, T 31 N, R 12 W.

The project limits extend approximately from the east edge of East Glacier to near the crest of the hill east of the Two Medicine River. The total length of the project is approximately 2.0 km (measured along the existing roadway).

This proposed project requires use of a historic bridge structure that is on, or eligible for listing on the NATIONAL REGISTER OF HISTORIC PLACES.

NOTE: Any response in a box will require additional information, and may result in an individual evaluation/statement. Consult the "Nationwide" Section 4(f) Evaluation procedures.

	YES	NO
1. Is the bridge a NATIONAL HISTORIC LANDMARK?	<input type="checkbox"/>	X
2. Have agreements been reached through the procedures pursuant to Section 106 of the National Historic Preservation Act with the following:		
STATE HISTORIC PRESERVATION OFFICE (SHPO)?	X	<input type="checkbox"/>
ADVISORY COUNCIL ON HISTORIC PRESERVATION (ACHP)?	X	<input type="checkbox"/>

	<u>YES</u>	<u>NO</u>
3. Any other agency/ies with jurisdiction at this location?	—	X
a) If "YES" will additional approval(s) for this	—	
Section 4(f) application be required?	<input type="checkbox"/>	X
b) List of agencies with jurisdiction at this location:		
USA - CORPS OF ENGINEERS (Section 404 Permit)	X	
USDA - Forest Service	<input type="checkbox"/>	X
USDA - Soil Conservation Service (FPPA)	<input type="checkbox"/>	X
FEMA Regulatory Floodway (Permit)	<input type="checkbox"/>	X
MDFW&P - Parks Division (Fishing Access Site)	<input type="checkbox"/>	X
MDFW&P - Wildlife Division (wetlands)	<input type="checkbox"/>	X
MDFW&P - Fisheries Division (MSPA)	<input type="checkbox"/>	X
MDSL (navigable rivers under state law)	<input type="checkbox"/>	X
MDEQ - Air And Waste Management Bureau	—	X
MDEQ - Water Quality Bureau	—	X
MDNR&C (irrigation systems)	—	X
Blackfeet Tribe - (ALPO Permit)	X	—

ALTERNATIVES & FINDINGS

EACH of the following **ALTERNATIVES** for this proposed project have been evaluated to avoid the use of the historic bridge:

1. "Do Nothing."
2. Rehabilitate the existing bridge without affecting the historic integrity of the structure in accordance with the provisions of *Section 106* in the *NHPA*.
3. Construct the proposed bridge at a location where the existing historic structure's integrity will not be affected as determined by the provisions of the *NHPA*.

The above **ALTERNATIVES** have been applied in accordance with this PROGRAMMATIC SECTION 4(f) EVALUATION and are supported by **EACH** of the following **FINDINGS**:

	<u>YES</u>	<u>NO</u>
1. The "Do Nothing" ALTERNATIVE has been evaluated and has been found to ignore the basic transportation need at this location.	X	<input type="checkbox"/>
This ALTERNATIVE is neither feasible nor prudent for the following reasons:		
a) Maintenance — this ALTERNATIVE does not correct the structurally deficient condition and/or poor geometrics (clearances, approaches, visibility restrictions) found at the existing bridge. Any of these factors can lead to a sudden catastrophic collapse, and/or a potential injury including loss of life. Normal maintenance will not change this situation.	X	<input type="checkbox"/>

YES _____ NO _____

- b) Safety — this **ALTERNATIVE** also does not correct the situation which causes the existing bridge to be considered deficient. Because of these deficiencies, the existing bridge presents serious and unacceptable safety hazards to the travelling public and/or places intolerable restrictions (gross vehicle weight, height, and/or width) on transport.

X ☐

A copy of the MDT Bridge Bureau's Inspection Report is attached.

X ☐

2. The rehabilitation **ALTERNATIVE** has been evaluated with one or more of the following **FINDINGS**:

- a) The existing bridge's structural deficiency is such that it cannot be rehabilitated to meet minimum acceptable load and traffic requirements

without adversely affecting the structure's historic integrity.

X _____

- b) The existing bridge's geometrics (height, width) cannot be changed without adversely affecting the structure's historic integrity.

- c) This **ALTERNATIVE** does not correct the serious restrictions on visibility (approach geometrics, structural requirements) which also contributes to an unsafe condition at this location.

Is this rehabilitation **ALTERNATIVE** therefore considered to be feasible and/or prudent based on the preceding evaluations?

☐ X

3. The relocation **ALTERNATIVE**, in which the new bridge has been moved to a site that presents no adverse effect upon the existing structure has also been considered under the following **FINDINGS**:

- a) Terrain and/or local geology. The present structure is located at the only feasible and/or prudent site for a bridge on the existing route. Relocating to a new site — either up-, or downstream of the preferred location — will result in extraordinary bridge/approach engineering and associated construction costs.

The preferred site is the only prudent location due to the terrain

and/or geologic conditions in the general vicinity.

Any other location would cause extraordinary disruption to existing traffic patterns.

- b) Significant social, economic and/or environmental impacts. Locating the proposed bridge in other than the preferred site would result in significant social/economic impacts such as the displacement of families, businesses, or severing of prime/unique farmlands. Significant environmental impacts such as the extraordinary involvement in wetlands, regulated floodplains, or habitat of threatened/endangered species are likely to occur in any location outside the preferred site.

YES NO

c) Engineering and economics. Where difficulty/ies associated with a new location are less extreme than those listed above, the site may still not be feasible and prudent where costs and/or engineering difficulties reach extraordinary magnitudes. Does the **ALTERNATE** location result in significantly increased engineering or construction costs (such as a longer span, longer approaches, etc.)?

— —

d) Preservation of existing historic bridge may not be possible due to

either or both of the following:

the existing structure has deteriorated beyond all reasonable possibility of rehabilitation for a transportation or alternative use;

no responsible party can be located to maintain and preserve the historic structure. X

— —

Therefore, in accordance with the previously-listed FINDINGS it is neither feasible nor prudent to locate the proposed bridge at a site other than the preferred **ALTERNATE** as described.

X ☐

MEASURES TO MINIMIZE HARM

This "Nationwide" Programmatic Section 4(f) Statement applies only when the following **Measures to Minimize Harm** have been assured; a check in a box MAY void the Programmatic application — if so, a full Section 4(f) Evaluation **will be required**:

1. Is the bridge being rehabilitated under this proposed project?
If "YES", is the historic integrity of the structure being preserved to the greatest extent possible; consistent with unavoidable transportation needs, safety, and load requirements?

— X

NOTE:

If "NO", refer to item 2., following, to determine Programmatic applicability.

— ☐

2. The bridge is being replaced, or rehabilitated to the point where historic integrity is affected. Are adequate records being made of the existing structure under HISTORIC AMERICAN ENGINEERING RECORD standards, or other suitable means developed through consultation with SHPO and the ACHP?

X ☐

3. If the bridge is being replaced, is the existing structure being made available for alternative use with a responsible party to maintain and preserve same?

X ☐

4. If the bridge is being adversely affected, has agreement been reached through the Section 106 process of the National Historic Preservation Act on these **Measures to Minimize Harm** (which will be incorporated into the proposed project) with the following:

SHPO? (Date: January 29, 1999)

X ☐

ACHP? (Date: January 29, 1999)

X ☐

FHWA? (Date: January 29, 1999)

X ☐

A copy of the **Programmatic Memorandum of Agreement (P.M.o.A.)** signed/approved by these agencies is attached.

X ☐

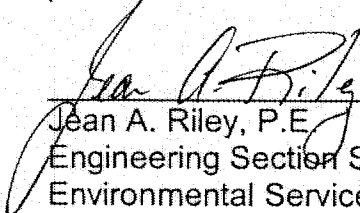
COORDINATION

There has been additional **COORDINATION** with the following agencies regarding this proposed project (other than those listed previously):

City/County government: Public Meetings
Local historical society: Not Applicable
Adjacent property owners: Public Meetings
Others: Blackfeet Tribal Council Briefings

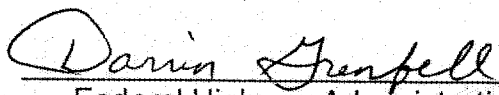
Copies of letters from these agencies regarding this proposed project are attached. This proposed project is also documented as an Environmental Assessment under the requirements of the *National Environmental Policy Act* (42 U.S.C. 4321, et seq.).

SUMMARY & APPROVAL - The proposed action meets all criteria regarding the required **ALTERNATIVES, FINDINGS, and Measures to Minimize Harm** which will be incorporated into this proposed project. This proposed project therefore complies with the July 5, 1983 Programmatic Section 4(f) Evaluation by the U.S. DEPARTMENT OF TRANSPORTATION's Federal Highway Administration. This document is submitted pursuant to 49 U.S.C. 303 and in accordance with the provisions of 16 U.S.C. 470f.



Jean A. Riley, P.E.
Engineering Section Supervisor
Environmental Services

Date: 3/5/03

Approved: 

Federal Highway Administration

Date: 4/2/03

"ALTERNATIVE ACCESSIBLE FORMATS OF THIS
DOCUMENT WILL BE PROVIDED ON REQUEST."

JMM:KMH:AC

Attachments

cc: Michael Johnson - Great Falls District Administrator
Carl S. Peil, P.E. - Preconstruction Engineer
Joseph P. Kolman, P.E. - Bridge Engineer
John Horton, P.E., Right-of-Way Bureau Chief
David W. Jensen, Supervisor - Fiscal Programming Section
Mark A. Wissinger, P.E., Supervisor - Contract Plans Section
Dave Hill, Manager - Environmental Services

Appendix 11. Programmatic Agreement Implementing the Roads and Bridges
Preservation Plan

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
AND
THE MONTANA STATE HISTORIC PRESERVATION OFFICE
AFFECTING HISTORIC ROADS AND BRIDGES
IN MONTANA

WHEREAS, the Federal Highway Administration, Montana Division (FHWA), proposes to make Federal funding available to the Montana Department of Transportation (MDT) for that agency's ongoing program to construct or rehabilitate highways and bridges, and

WHEREAS, the FHWA has determined that this federally-assisted program may have an effect upon a certain class of properties included in or eligible for inclusion on the National Register of Historic Places and has consulted with the Advisory Council on Historic Preservation (Council) and the Montana State Historic Preservation Office (SHPO) pursuant to Section 800.13 of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C.470f); and

WHEREAS, the FHWA and the MDT have developed a Historic Preservation Plan regarding roads and bridges and that document has been subject to review under 36 CFR 800.13 and has been agreed to by FHWA, SHPO and the Council; and

WHEREAS, the MDT participated in the consultation and has been invited to concur in this Programmatic Agreement;

NOW THEREFORE, the FHWA, the Council, and the Montana SHPO agree that the program addressed in this Programmatic Agreement shall be administered in accordance with the following stipulations to satisfy the FHWA's Section 106 responsibility for all individual undertakings of the program.

Stipulations

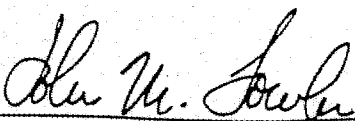
The FHWA will ensure that the following measures are carried out:

- 1) The FHWA and MDT will implement the Roads and Bridges HPP in lieu of compliance with 36 CFR §§ 800.4 through 800.6.
- 2) This Programmatic Agreement will remain in force for as long as the roads and bridges HPP is in force or unless Stipulation 9 of this Agreement is invoked.
- 3) FHWA will carry out the existing MOA's to preserve or record historic bridges that are now scheduled for replacement.

- 4) The MDT will prepare a report annually on its implementation of the HPP, and provide this report to the FHWA, Montana SHPO and the Council for review, comment and consultation as needed.
- 5) The Council and the SHPO may monitor activities carried out pursuant to this Programmatic Agreement, and the Council will review such activities if so requested by a signatory to this Agreement or by a member of the public. FHWA will cooperate with the Council and the SHPO in carrying out their monitoring and review responsibilities as stipulated in 36 CFR 800.13
- 6) Any party to this Programmatic Agreement may request that it be amended, whereupon the parties consult in accordance with 36 CFR 800.13 to consider such an amendment.
- 7) Any party to this Programmatic Agreement may terminate it by providing, in writing, forty-five (45) days notice to the other parties, provided that the parties will consult during the period prior to termination to seek arrangement on amendments or other actions that would avoid termination. In the event of termination, FHWA will comply with 36 CFR Part 800.4 through 800.6 with regard to individual undertakings covered by this Programmatic Agreement.
- 8) Should the Montana SHPO object within sixty (60) days to any stipulation pursuant to this Historic Preservation Plan, the FHWA shall consult with the objecting party to resolve the objection. If the FHWA determines that the objection cannot be resolved, the FHWA shall forward all documentation relevant to the dispute to the Council. Within thirty (30) days after receipt of all pertinent documentation, the Council will either:
 1. provide the FHWA and Montana SHPO with recommendations, which the FHWA and Montana SHPO will take into account in reaching a final decision regarding the dispute; or
 2. notify the FHWA and Montana SHPO that it will comment pursuant to 36 CFR § 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by the FHWA and Montana SHPO in accordance with 36 CFR § 800.6(c)(2) with reference only to the subject of the dispute; the FHWA and MDT's responsibility to carry out all actions under this Historic Preservation Plan that are not the subjects of the dispute will remained unchanged.
- 9) In the event that the FHWA does not carry out the terms of this Programmatic Agreement, the FHWA will comply with 36 CFR Sections 800.4 through 800.6 with regard to individual undertakings covered by this Programmatic Agreement.

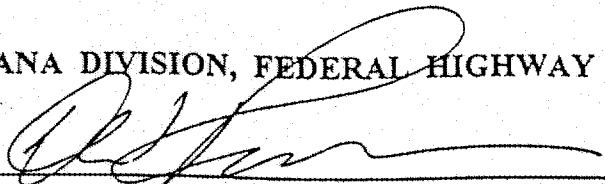
Execution and implementation of this Programmatic Agreement evidences that the FHWA has satisfied its Section 106 responsibilities for all individual undertakings of the program.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: 


Date: 7/17/97

MONTANA DIVISION, FEDERAL HIGHWAY ADMINISTRATION

By: 

Date: 7-9-97

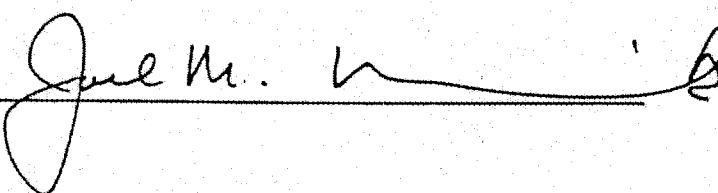
MONTANA STATE HISTORIC PRESERVATION OFFICER

By: 

Date: 7-8-97

CONCUR

MONTANA DEPARTMENT OF TRANSPORTATION

By: 

Date: 7/8/97

AMENDMENT
TO
PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
AND
THE MONTANA STATE HISTORIC PRESERVATION OFFICE
AFFECTING HISTORIC ROADS AND BRIDGES
IN MONTANA

WHEREAS, the Federal Highway Administration, Montana Division (FHWA), proposes to make Federal funding available to the Montana Department of Transportation (MDT) for that agency's on-going program to construct or rehabilitate highways and bridges, and

WHEREAS, the FHWA has determined that this federally-assisted program may have an effect upon a certain class of properties included in or eligible for inclusion on the National Register of Historic Places and has consulted with the Advisory Council on Historic Preservation (Council) and the Montana State Historic Preservation Office (SHPO) pursuant to Section 800.13 of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and

WHEREAS, the FHWA and the MDT developed a Historic Preservation Plan regarding roads and bridges and that document was reviewed and accepted by FHWA, SHPO and the Council, and

WHEREAS, that document did not include historic roads constructed before the creation of the Montana State Highway Commission in 1913, requiring the necessity of including those properties under a Programmatic Agreement as specified in Part VI, Section A(5)(1)(a) of the MDT's Roads and Bridges Historic Preservation Plan (See Attachment 2), and

WHEREAS, that the existing Programmatic Agreement/Historic Preservation Plan is supplemented by this amendment and its underlying provisions remain in effect to the extent that they have not been completed, and

WHEREAS, the MDT participated in the consultation and has been invited to concur in this Programmatic Agreement;

NOW THEREFORE, the FHWA, the Council and the Montana SHPO agree that the program addressed in this Programmatic Agreement shall be administered in accordance with the following stipulations to satisfy the FHWA's Section 106 responsibility for all individual undertakings of the program.

Stipulations

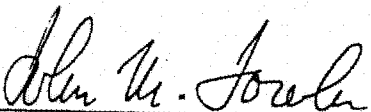
The FHWA will ensure that the following measures are carried out:

- 1) The FHWA and MDT will implement this amendment to the Historic Roads and Bridges Programmatic Agreement in lieu of compliance with 36 CFR §§ 800.4 through 800.6.
- 2) The MDT will acquire a 2± mile (10,560± linear foot) segment of the Mullan Road (24MN133) in Mineral County, Montana. The trail will be preserved and developed as a historic recreational/interpretive trail. The MDT will provide funding toward the development and interpretation of the trail and obtain a conservation easement on the property to assure its future preservation. The interpretive plan for the trail will be developed in cooperation with the Montana SHPO, the Montana Department of Fish, Wildlife & Parks and the Salish-Kootenai Tribal Preservation Office. The Mullan Road segment will be acquired by the MDT by June 30, 1999.
- 3) The MDT will provide \$13,000 to the Montana Historical Society for partial funding of a conference regarding the historically significant Bozeman Trail. The conference will encourage research into the development and use of pre-1913 roads and trails, their preservation and development and interpretation for the public benefit. Other funding for the conference will be secured from the Montana Committee for the Humanities, Wyoming Humanities Council, Bozeman Trail Association, Frontier Heritage Alliance and other private organizations. The conference will be held July 28 - 31, 1999 (See Stipulation 2 above).
- 4) The MDT's financial contribution to the conference will function, along with other stipulations of the existing Plan, as mitigation for individual undertakings where segments of historic pre-1913 roads and trails may be affected by MDT road and bridge reconstruction projects.
- 5) A list of MDT projects that have the potential to affect segments of historic pre-1913 roads and trails is attached (See Attachment 1).
- 6) The MDT will provide funding for the installation of ten historic markers on pre-1913 historic roads and trails that are adjacent to Montana's primary and secondary highway system. The marker locations will be determined by MDT and SHPO.
- 7) The MDT will continue to record and assign Smithsonian trinomial site numbers to segments of historic 19th century roads and trails located within the MDT's five administrative districts. Where particular roads and trails segments involve features or historic significance on a statewide or national level, the MDT will consult with SHPO to develop a plan to avoid and/or incorporate the property into the MDT's undertaking as specified in Part VI, Section 4 of the existing Roads and Bridges Historic Preservation

- 8) The Council and the SHPO may monitor activities carried out pursuant to this Programmatic Agreement, and the Council will review such activities if so requested by a signatory to this Agreement or by a member of the public. FHWA will cooperate with the Council and the SHPO in carrying out their monitoring and review responsibilities as stipulated in 36 CFR 800.13
- 9) Any party to this Programmatic Agreement may request that it be amended, whereupon the parties consult in accordance with 36 CFR 800.13 to consider such an amendment.
- 10) Should the Montana SHPO object within sixty (60) days to any stipulation pursuant to this Programmatic Agreement, the FHWA shall consult with the objecting party to resolve the objection. If the FHWA determines that the objection cannot be resolved, the FHWA shall forward all documentation relevant to the dispute to the Council. Within thirty (30) days after receipt of all pertinent documentation, the Council will either:
1. Provide the FHWA with recommendations which it will take into account in reaching a final decision regarding the dispute; or
 2. Notify the FHWA that it will comment pursuant to 36 CFR § 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by the FHWA in accordance with 36 CFR § 800.6(c)(2) with reference only to the subject of the dispute; the FHWA's responsibility to carry out all actions under this Programmatic Agreement that are not subjects of the dispute will remain unchanged.
- 11) In the event that the FHWA does not carry out the terms of this Programmatic Agreement, the FHWA will comply with 36 CFR Sections 800.4 through 800.6 with regard to individual undertakings covered by this Programmatic Agreement.

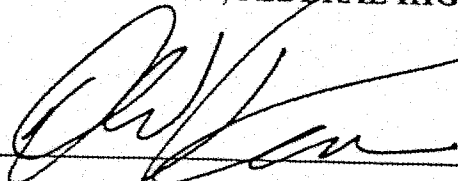
Execution and implementation of this Programmatic Agreement evidences that the FHWA has satisfied its Section 106 responsibilities for all individual undertakings of the program.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: 

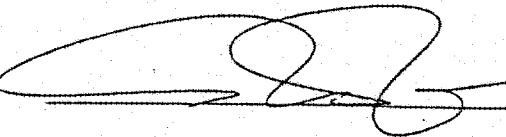
Date: 1/29/88

MONTANA DIVISION, FEDERAL HIGHWAY ADMINISTRATION

By: 

Date: 1-21-88

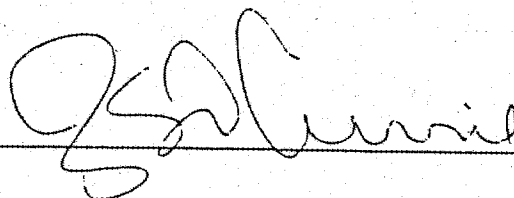
MONTANA STATE HISTORIC PRESERVATION OFFICER

By:  _____

Date: 1-14-99

CONCUR

MONTANA DEPARTMENT OF TRANSPORTATION

By:  _____

Date: 1/14/99

STRUCTURE INVENTORY AND APPRAISAL

(18) STRUCTURE NUMBER
(19) LOCATION INTERSECTION
(20) LOCATION

PAGE 01 210 01961
TNC MEDICINE RIVER
US 2 LAST GLCP

SUFFICIENCY RATING 0.00

IDENTIFICATION

(1) STATE
(2) HIGHWAY DISTRICT
(3) COUNTY
(4) CITY
(5) INVENTORY ROUTE
(6) FACILITY CLASS
(7) VERT CLEARANCE
(8) ROAD SECTION NUMBER
(9) BRIDGE DESCRIPTION
(10) LATITUDE
(11) LONGITUDE
(12) PHYSICAL VULNERABILITY
(13) BYPASS ROUTE LENGTH
(14) CUSTODIAN
(15) FEDERAL-AID PROJECT NUMBER

MONTANA
HAVRE - 32
121000020
US 2
99 FT 90 IN
0025
3 MI
99 MI
S H DEPT
FAP 353

STRUCTURE DATA

(17) YEAR BUILT/IMPROVED
(18) LARGEST SPAN
(19) ADT IN YEAR
(20) YEAR OF COST
(21) DESIGN LOAD
(22) APPROXIMATE W/SHIELD
(23) BRIDGE WIDTH
(24) SKIN
(25) STRUCTURE FLARE
(26) TRAFFIC SAFETY FEATURES
(27) HISTORIC SIGNIFICANCE
(28) VULNERABILITY
(29) TYPE SERVICE
(30) HIGHWAY

85
41
001261
1984
14 15
024 FT
NONE
0 III
OPEN
WATERWAY

CONDITION

(31) DECK
(32) SUPERSTRUCTURE
(33) SUBSTRUCTURE
(34) CHANNEL & CHANNEL PROTECTION
(35) CULVERT
(36) ESTIMATED REMAINING LIFE
(37) OPERATING RATING
(38) APPROACH ROADWAY
(39) INVENTORY RATING

645
10 YRS
3-3
251
115 H

APPRAISAL

(40) STRUCTURE CONDITION
(41) DECK GRADE
(42) UNDERCLEARANCE
(43) VERTICAL ALIGNMENT
(44) WATERWAY ADEQUACY
(45) APPROACH ROADWAY ALIGNMENT

PROPOSED IMPROVEMENTS

(73) YEAR NEEDED
(74) TYPE OF SERVICE
(75) TYPE OF WORK
(76) IMPROVEMENT LENGTH
(77) DESIGN LOADING
(78) ROADWAY WIDTH
(79) NUMBER OF LANES
(80) ADT
(81) PROPOSED ROADWAY IMPROVEMENT
(82) APPROACH IMPROVEMENT
(83) YEAR
(84) COST OF IMPROVEMENTS
(85) P E COST
(86) DEMOLITION COST
(87) SUBSTRUCTURE COST
(88) SUPERSTRUCTURE COST
(89) DATE OF LAST INSPECTION

1994
000966
HIS 20
0034
02
1994
1995
\$2279
\$1113
\$2279
\$1504
02/08/84

(43) STRUCTURE TYPE MAIN STEEL CONT
(44) STRUCTURE TYPE APP STEEL CONT
(45) NO OF SPANS MAIN SPANS
(46) NO OF APPROACH SPANS
(47) TOTAL HORIZ CLEARANCE
(48) MAX SPAN LENGTH
(49) STRUCTURE LENGTH
(50) SIDEWALK
(51) BRIDGE ROW WIDTH CURB TO CURB
(52) DECK WIDTH OUT TO OUT
(53) VERT CLEARANCE OVER DECK
(54) MIN VERT UNDERCLEARANCE
(55) MIN LAT UNDERCLEARANCE
(56) MIN LAT UNDERCLEARANCE
(57) WEARING SURFACE
(58) *** DEPTH OF COVER *** INCHES

IRUSS-DCK
SIR/MS GF
0006
23.8 FT
9240 FT
009761 FT
2.0 FT
2.0 FT
23.8 FT
30.0 FT
99 FT
99 FT
99.0 FT
99.0 FT
00.0 FT

COMMENTS

NEW ROUTE 210 NEW DEPT
MAINT. INSP
5-29-8
DATE 7-1-85

COMMENTS

NEW ROADWAY & APPROACH ENL
DATE 8-11-87
APPRAISAL
DATE
GENERAL REVIEW

S.I. & A. SUPPLEMENTAL FORM

NO. P00001 210+0.1961

FEATURE CROSSED TWO MEDICINE RIVER
DATE INSPECTED 5-29-87

BY JACK WALSH - JOHN ROONEY

CONDITION RATINGS

5 DECK

(59) 6 SUPERSTRUCTURE

(60) 5 SUBSTRUCTURE

(61) 2 CHANNEL PROTECTION

5 Wearing Surface
7 Efflorescence
6 Expansion Joints
6 Sidewalks/Curbs
2 Median
8 Drainage
6 Railing

1 Stringers
1 Girders/Beams
2 Floorbeams
2 Bracing
1 Bearing Devices
6 Trusses
5 Paint

6 Abutment
6 Backwalls/Wings
6 Endfills
5 Piers
8 Columns
2 Piles
6 Caps
2 Bracing

8 Riprap
8 Embankment
2 Revetment
2 Spur Dike

APPRAISAL RATINGS

2 CULVERT

(65) 8 APPR. RDWY. CONDITIONS

(71) 8 WATERWAY ADEQUACY

(72) 4 APPR. RDWY. ALIGNMENT

— Structural Integrity
— Alignment
— Settlement

dd. 8 Wearing Surface
ee. 8 Shoulders
ff. 8 Guardrail

gg. 8 Channel Scour
hh. 8 Stream Capacity
ii. 8 Freeboard
jj. 8 Drift

kk. 8 Horiz. Curve
ll. 4 Vert. Curve
mm. 8 Visibility
nn. 8 Signing

MARKS: (A) POPOUTS THROUGHOUT. SOME DELAMINATIONS THROUGHOUT A LARGE AMOUNT OF DELAMINATIONS AT THE EXPANSION JOINT OVER BENT 7. (B) SOME SHOWING ON BOTTOM OF DECK SEE JT. REPORT. (D) LARGE AMOUNTS OF DETERIORATION. SEVERAL SECTIONS ARE DAMAGED. (H) SOME AREAS NEED PAINT. (N.) SHOES & ROCKERS NEED PAINT. THE TRUSS MEMBERS ARE RUSTING & TO WATER COMING DOWN THROUGH THE JOINTS. OTHER AREAS OF TRUSS NEED TO BE CLEANED & PAINTED. (O.P.) ABUT NO 1 IS CRACKED WITH SPALLED CONCRETE AT THE BASE. ABUT NO 10 HAS BEEN BUILT BUT HAS SHIFTED BACK NOW TOWARD THE STREAM CAUSING JOINT TO SHUT & ROCKERS TO LEAN OVER. (R) SOME CONCRETE SEALING UNDER THE SHOES AND AT THE FOOTINGS. (U) SEE (R). SOME BOLTS ARE LOOSE & SOME ARE MISSING FROM THE STIFFENER OVER BENT NO 9. THIS IS FROM THE REPAIR WORK THAT WAS DONE.

MAINT. ACTIVITY NUMBER

MAINTENANCE RECOMMENDATIONS

	CLEAN & PAINT TRUSS & SHOES.
	SEAL DECK JOINTS.
	REPAIR SUBSTRUCTURE CONCRETE CONCRETE.
	REPLACE BOLTS OVER PIER NO 9.

For MDOH Maintenance Use

tive

CONDITION OF EXPANSION JOINTS

Structure Number POCCOI 210+0, 1961

Date 5-29-87

LOCATION OF EXPANSION JOINTS

<u>Joint No.</u>	<u>Location</u>	<u>Joint No.</u>	<u>Location</u>
1	<u>BENT # 2</u>	6	<u>BENT # 6</u>
2	<u>BENT # 3</u>	7	<u>BENT # 7</u>
3	<u>BENT # 4</u>	8	<u>BENT # 8</u>
4	<u>BENT # 5</u>	9	<u>BENT # 9</u>
5	<u>MID POINT BETWEEN BENT 5 & BENT 6</u>	10	

TYPE OF EXPANSION JOINT

<u>Type</u>	<u>Joint No.'s</u>
A. Sliding Plate	<u>3 & 7</u>
B. Double Angle Irons	<u>1-2-4-5-6-8-9</u>
C. Finger Joint	
D. Wabo Flex	
E. Transflex	
F. Fel Pro	
G. Others, describe	

CONDITION OF JOINT

<u>Condition</u>	<u>Joint No.'s</u>
A. Joint is in good condition	<u>1-2-3-4-5-6-8-9</u>
B. Joint is loose and clattering	
C. Joint has been bolted down and is tight	
D. Joint has been bolted down, but is loose	
E. Joint has been cut loose and welded down	
F. Other condition, describe	<u># 7 IS JAMMED SHUT & CONCRETE IS SPALLING ON BOTH SIDES OF THE JOINT.</u>

P00001 210+0.1960
TWO MEDICINE RIVER



SPAN NO. 2- SOUTH SIDE.
PAINT ON BOTTOM FLANGE HAS FAILED.



P00001 210+0.1960
TWO MEDICINE RIVER



CROSSMEMBER UNDER THE JOINT
AT ABUTMENT NO. 2 NEEDS PAINT.



P00001 210+0.1960
TWO MEDICINE RIVER



ROCKERS OUT OF PLUMB OVER BENT NO. 4.



AREA BELOW THE JOINT BETWEEN SPANS
3 & 4- NEEDS PAINT.

P00001 210+0.1960
TWO MEDICINE RIVER



PIER 4 JOINT CONNECTION NEEDS PAINT.



SPAN 4—1ST TRUSS- NORTH SIDE . INSIDE LOWER
CHORD HAS LOST MOST OF THE PAINT. THE MAIN
JOINT CONNECTIONS ARE SPOTTY ON THE OUTSIDE.

P00001 210+0.1960
TWO MEDICINE RIVER



THIS CROSSMEMBER NEAR PIER NO. 5 TRAPS
WATER—IT SHOULD BE DRILLED OUT TO DRAIN
AND NEEDS PAINT.



PIER NO. 5—CONCRETE DETERIORATION UNDER
THE SHOE AREA.

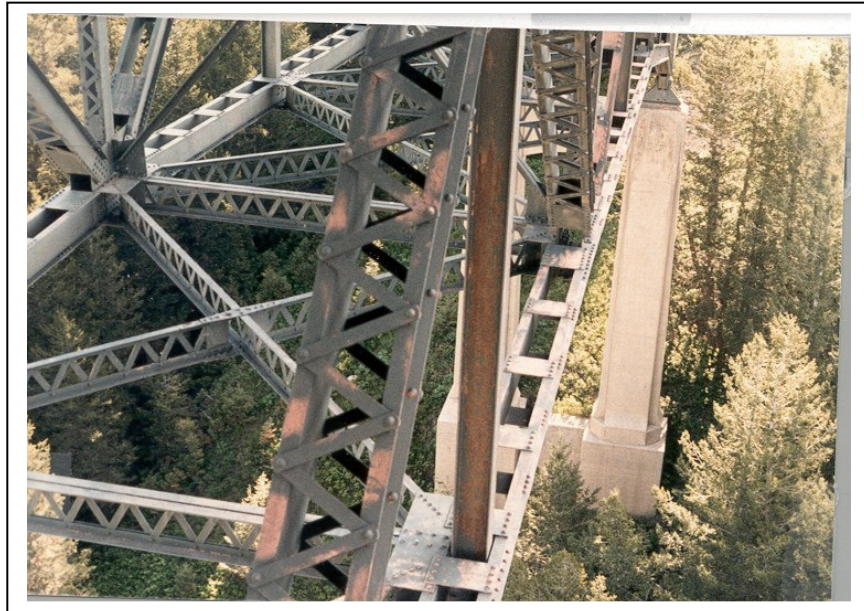
P00001 210+0.1960
TWO MEDICINE RIVER



CONCRETE DETERIORATION UNDER THE SHOES ON THE
DOWNSTREAM EDGE OF PIER 5.
RUST ON SHOES & LOSS OF FINISH COAT
ON TRUSS MEMBERS.



P00001 210+0.1960
TWO MEDICINE RIVER



SPAN NO. 5—MIDSPAN – DOWNSTREAM EDGE
VERTICAL POST IS RUSTING FROM THE BOTTOM
TO ABOUT ½ WAY UP THE POST.



SPAN 5—VERTICAL POST PIER 6
INSIDE CHANNEL RUSTING.

P00001 210+0.1960
TWO MEDICINE RIVER



SPAN NO. 5—4TH DIAGONAL FROM PIER 6
INSIDE CHANNEL RUSTING.



CONCRETE DETERIORATION UNDER THE SHOE
AT PIER 6—DOWNSTREAM.

P00001 210+0.1960
TWO MEDICINE RIVER



CONCRETE DETERIORATION UNDER THE SHOE
DOWNSTREAM—PIER 7.



EXPANSION ROLLER. OVER PIER 7.

P00001 210+0.1960
TWO MEDICINE RIVER



SOME BOLTS MISSING FROM THE CONNECTIONS
OVER PIER 7—THIS WAS DONE DURING
THE RECENT REPAIR WORK.



WIND STRUT & GUSSET WERE BENT
DURING THE ORIGINAL SLIDE PROBLEM.

P00001 210+0.1960
TWO MEDICINE RIVER



EAST APPROACH SPAN—DOWNSTREAM
RUST ON WEB TO BOTTOM ANGLE
& RUST ON WEB.



P00001 210+0.1960
TWO MEDICINE RIVER



ROCKERS OUT OF PLUMB ON PIER 8.



PIER 4 WAS REPAIRED ABOUT 10 YRS AGO
CRACKS ON TOP OF PIER.

INITIAL ASSESSMENT FORM FOR STRUCTURE :

P00001210+01961

Location : E EAST GLACIER

Structure Name : none

General Location Data

District Code, Number, Location : 03 Dist 3 GREAT FALLS

County Code, Location : 035 GLACIER

Kind to Hwy Code, Description : 2 2 U.S. Numbered Hwy

Str Owner Code, Description : 1 State Highway Agency

Intersecting Feature : TWO MEDICINE RIVER

Division Code, Location :32 HAVRE

City Code, Location :00000 RURAL AREA

Signed Route Number :00002

Maintained by Code, Description :1 State Highway Agency

Kilometer Post, Mile Post : 338.27 km 209.73

Structure on the State Highway System : ☒ Latitude : 48°27'00"

Structure on the National Highway System : ☒ Longitude : 113°12'24"

Str Meet or Exceed NBIS Bridge Length : ☒

Construction Data

Construction Project Number : F 353 C 1

Construction Station Number : 49+38.00

Construction Drawing Number : 2281

Construction Year : 1941

Reconstruction Year : 1985

Traffic Data

Current ADT : 2,240

ADT Count Year : 1998

Percent Trucks : 2 %

Structure Loading, Rating and Posting Data

Loading Data :

Design Loading :	2 M 13.5 (H 15)
Inventory Load, Design	16.3 mton 2 AS Allowable Stress
Operating Load, Design	20.8 mton 2 AS Allowable Stress
Posting	5 A/Above Legal Loads

Rating Data :

	Operating	Inventory	Posting
Truck Type 1 :	-1	-1	
Truck Type 2 :	-1	-1	
Truck Type 3 :	45	-1	

Structure Roadway, Span and Clearance Data

Structure Deck, Roadway and Span Data :

Structure Length : 231.85 m *225.85*
 Number of Main Spans : 3
 Number of Approach Spans : *2*
 Deck Area : 4,680.00 m sq *2054*
 Deck Roadway Width : 7.32 m
 Approach Roadway Width : 7.32 m

Structure Vertical and Horizontal Clearance Data :

Vertical Clearance Over the Structure : 99.99 m
 Reference Feature for Vertical Clearance : N Feature not hwy or RR
 Vertical Clearance Under the Structure : 0.00 m
 Reference Feature for Lateral Underclearance : N Feature not hwy or RR
 Minimum Lateral Under Clearance Right : 0.00 m
 Minimum Lateral Under Clearance Left : 0.00 m

Structure Vertical and Horizontal Clearance Data By Span and Inventory Route :

Span Group	Over / Under Direction	Inventory Route	South, East or Bi-directional Travel			North or West Travel		
			Direction	Vertical	Horizontal	Direction	Vertical	Horizontal
0	Route On Structure	P00001	Both	99.99 m	7.32 m	N/A		

Inspection Data

Inspection Due Date : 11 May 2001

(91) Inspection Frequency (months) :24

NBI Inspection Data

Sufficiency Rating : 32

Structure Status : Functionally Obsolete and Eligible for Replacement

(90) Date of Last Inspection :

(90) Inspection Date :

Last Inspected By :

Inspected By :

(67) Structure Rating :

(58) Deck Rating :

(59) Superstructure Rating :

(60) Substructure Rating :

(68) Deck Geometry :

(72) App Rdwy Align :

(41) Posting Status :

(36A) Bridge Rail Rating :

(36B) Transition Rating :

(36C) Approach Rail Rating :

(36D) End Rail Rating :

(62) Culvert Rating :

(61) Channel Rating :

(113) Scour Critical :

(71) Waterway Adequacy :

Crew Hours for Inspection :

Helper Hours :

Special Crew Hours :

Special Equipment Hours :

Snooper Required : ☒

Snooper Hours for inspection :

Flagger Hours :

Unrepaired Spalls :

Deck Surfacing Depth :

BGM
6-5

Wednesday, June 30 1999

by: OPSSU6653

INITIAL ASSESSMENT FORM FOR STRUCTURE :

P00001210+01961

Location : E EAST GLACIER

Structure Name : none

Form: bms001c

Span Data

Group : 0

Type : Main

Description : *Deck Truss*

Material Type Code, Description : 4 Steel continuous

Median Code, Description : 0 No median

Span Design Code, Description : 9 Truss - Deck

NBI Main Span Flag : ☒

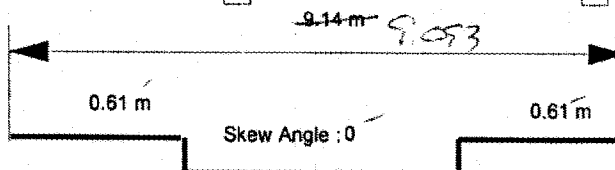
NBI Approach Span Flag : ☐

Deck Structure Type : 1 Concrete Cast-in-Place

Deck Surfacing Type : 1 Monolithic concrete (concurrently placed with structural deck)

Deck Protection Type : 0 None

Deck Membrain Type : 0 None



Element Inspection Data

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
13															
Unp Conc Deck/AC Ovl		2	2420	sq.m.	X							2120	100	0	0
			1441				%		%		%		%		%

Previous Inspection Notes :

SS1 - Spans 1A

04/01/1994

09/06/1996

05/11/1999

Inspection Notes:

113
Ref. Steel
Str. Steel

1 9.51 m 100%

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
107															
Paint Str Opn Girder		2	123	m.											
							%		%		%		%		%

Previous Inspection Notes :

Span 1A element

04/01/1994

09/06/1996

05/11/1999

Inspection Notes:

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
120															
U/Stl Thru Truss/Bol		2	247	m.											
							%		%		%		%		%

Previous Inspection Notes :

04/01/1994

09/06/1996

05/11/1999

Inspection Notes:

Rust scale and flaking

152

1

207 m - Main

245 m - 1A

Str

Beam

INITIAL ASSESSMENT FORM FOR STRUCTURE :

P00001210+01961

Location : E EAST GLACIER

Structure Name : none

Span Data

Group : 0

Type : Main

Description :

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
210															
R/Conc Pier Wall		2	8.73	m.			%		%		%		%		

Previous Inspection Notes :

04/01/1994

09/06/1996

05/11/1999 - Spalled concrete

Inspection Notes:

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
215															
R/Conc Abutment		2	19.23	m.			%		%		%		%		

Previous Inspection Notes :

04/01/1994

09/06/1996

05/11/1999 - Conc. deterioration

Inspection Notes:

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
234															
R/Conc Cap		2	73	m.			%		%		%		%		

Previous Inspection Notes :

04/01/1994

09/06/1996

05/11/1999

Inspection Notes:

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
304															
Open Expansion Joint		2	27.73	m.			%		%		%		%		

Previous Inspection Notes :

04/01/1994

09/06/1996

05/11/1999

Inspection Notes:

305

2 18

Bents

4 + 7

INITIAL ASSESSMENT FORM FOR STRUCTURE :

Form: bms001c

by: OPSSUB653

P00001210+01961

Location : E EAST GLACIER

Structure Name : none

Span Data

Group : 0

Type : Main

Description :

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
331															
Moveable Bearing			6	ea.			%		%		%				

Previous Inspection Notes :

04/01/1999	REFI
09/03/1999	OPZI
03/14/1999 - Full scale load	OFGU

Inspection Notes:

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
333															
Fixed Bearing			2	ea.			%		%		%				

Previous Inspection Notes :

04/01/1999	REFI
09/03/1999	OPZI
03/14/1999 - Full scale load	OFGU

Inspection Notes:

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
334															
Metal Rail Coated			317	m.			%		%		%		%		%

Previous Inspection Notes :

04/01/1999	REFI
09/03/1999	OPZI
03/14/1999	OFGU

Inspection Notes:

INITIAL ASSESSMENT FORM FOR STRUCTURE :

OPSSU8853

P00001210+01961

Form: bms001c

Location : E EAST GLACIER

Structure Name : none

Span Data

Group : 1

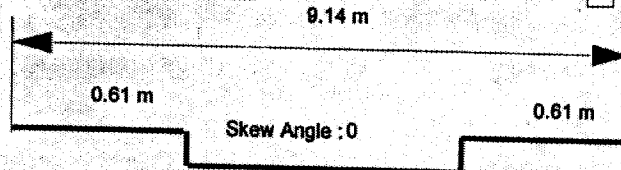
Type : Approach

Description :

Material Type Code, Description : **4 Steel continuous**
Span Design Code, Description : **2 Stringer/Multi-beam or Girder**

Median Code, Description : **0 No median**
NBI Main Span Flag : ☐ NBI Approach Span Flag : ☒

Deck Structure Type : **1 Concrete Cast-in-Place**
Deck Surfacing Type : **1 Monolithic concrete (concurrently placed with structural deck)**
Deck Protection Type : **0 None**
Deck Membrain Type : **0 None**



Element Inspection Data

Wednesday, June 30 1999

by: OPS3U6653

INITIAL ASSESSMENT FORM FOR STRUCTURE :

P00001210+01961

Location : E EAST GLACIER

Structure Name : none

Page 6

of 6

Form: bms001c

General Inspection Notes

09/06/1998 - Sufficiency Rating Calculation Accepted by ops3U6653 at 3/10/97 11:21:14	REFI
Sufficiency Rating Calculation Accepted by ops3U6653 at 2/19/97 14:21:24	
09/06/1998 - Sufficiency Rating Calculation Accepted by ops3U6653 at 3/10/97 11:21:14	OPZI
Sufficiency Rating Calculation Accepted by ops3U6653 at 3/10/97 11:21:14	
OPS3U6653 - Inspection comments -	
Structure Rating - 100.00	
Date 9/6/98	
Previous comments - Sufficiency Rating Calculation Accepted by ops3U6653 at 3/10/97 11:21:14	
Sufficiency Rating Calculation Accepted by ops3U6653 at 2/19/97 14:21:24	
05/11/1999	OFGU

STRUCTURE = P00001 210+0.196

DATE = 05/11/99

APPROACH LOOKING EAST

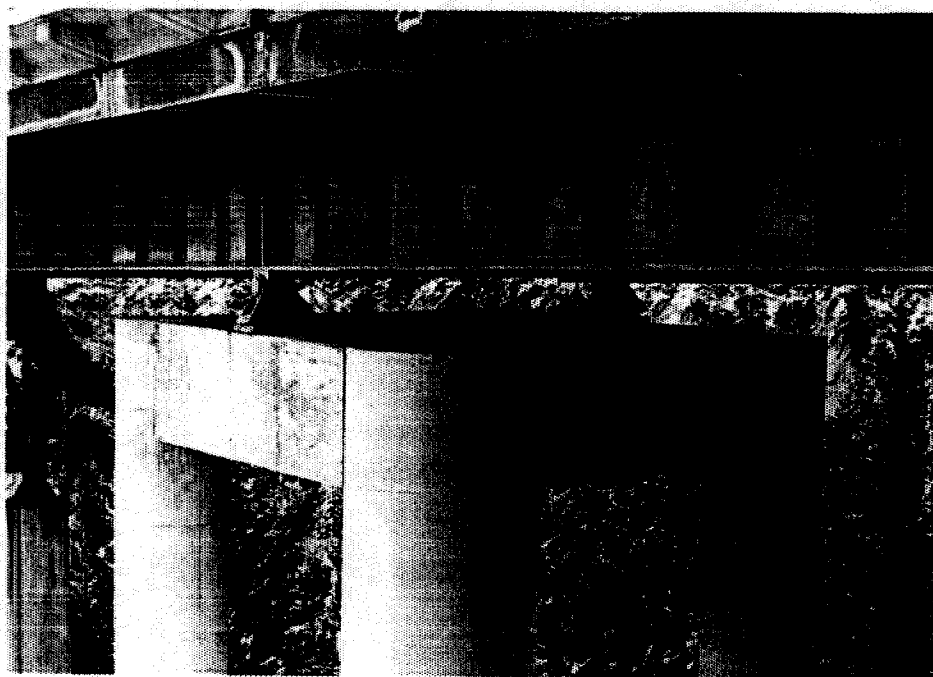


PROFILE LOOKING SOUTH



STRUCTURE = P00001 210+0.196 DATE = 05/11/99

NEW BENT ROCKERS



S.I. & A. SUPPLEMENTAL FORM

STRUCTURE NO. P00001 210+0196 FEATURE CROSSED Two Medicine River
 INSPECTED BY D. Leo & M. Olson DATE INSPECTED 5-11-99

CONDITION RATINGS

58. ☒ DECK

- A. 5 CURBS
- B. 7 FLOORING/SLAB
- C. 7 GUARD ANGLES
- D. 7 JOINTS
- E. 7 MEDIAN
- F. 7 RAIL/BARRIER
- G. 7 SIDEWALKS
- H. 7 WEARING SURFACE
- I. 7 OTHER

59. ☒ SUPERSTRUCTURE

- A. 6 BEARING DEVICES
- B. 6 BRACING
- C. 7 DRAINAGE
- D. 7 FLOORBEAMS
- E. 6 GIRDERS
- F. 5 PAINT
- G. 7 STRINGERS
- H. 6 TRUSSES
- I. 7 UTILITIES
- J. 7 OTHER

60. ☒ SUBSTRUCTURE

- A. 5 ABUTMENTS
- B. 5 BENTS/PIERS
- C. 5 BRACING
- D. 5 CAPS
- E. 5 COLUMNS
- F. 7 ENDFILLS
- G. 7 FOOTINGS/SILLS
- H. 7 ICE BREAKERS
- I. 7 PILES/POSTS
- J. 7 RETAINING WALLS
- K. 7 OTHER

61. ☒ CHANNEL AND CHANNEL PROTECTION

- A. 8 CHANNEL LINING
- B. 5 DRIFT
- C. 7 LEVEES
- D. 7 RIP RAP/GABIONS
- E. 7 SCOUR/PIPING
- F. 7 SPUR DIKE
- G. 7 STREAM BANK
- H. 7 VEGETATION
- I. 7 OTHER

62. ☒ CULVERT

- A. 7 DEPOSITION
- B. 7 EMBANKMENT
- C. 7 FOOTINGS
- D. 7 RAIL/BARRIER
- E. 7 INVERT
- F. 7 JOINTS/BOLTS
- G. 7 RETAINING WALLS
- H. 7 SHAPE
- I. 7 OTHER

65. ☒ APPROACH ROADWAY CONDITION

- A. 8 APPROACH SLAB
- B. 8 EMBANKMENT
- C. 8 GUARDRAIL
- D. 7 JOINTS
- E. 8 SHOULDERS
- F. 8 SURFACE
- G. 7 TRANSITION
- H. 7 OTHER

APPRAISAL RATINGS

71. ☒ WATERWAY ADEQUACY

- A. 8 ALIGNMENT
- B. 8 CAPACITY
- C. 8 FREEBOARD
- D. 8 PROFILE
- E. 7 OTHER

72. ☒ APPROACH ROADWAY ALIGNMENT

- A. 4 HORIZONTAL CURVE
- B. 5 LATERAL CLEARANCE
- C. 7 LOAD POSTED
- D. 7 SIGNS/MARKERS
- E. 5 VERTICAL CURVE
- F. 5 VISIBILITY
- G. 7 OTHER

REMARKS: No. 58 (A) Some pop-outs, spalled conc. (B)(G)(H) These items were up-graded in 1998. (C) Exhibit rust & scale (D) Dirt in joints (G) Open to traffic side. No. 59 (A) Rust, scale, tipped (B) Flaking paint, rust, scale (C) 50% plugged. (E)(F)(H) Rust, scale, flaking. No. 60 (A)(B)(C)(D)(E) Spalled conc, void pockets, vertical cracks as well as some mapping cracks. No. 65 (G) Limited - at bridge No. 72 (A) Sharp (B) Limited (D) Scratches (E)(F) Sag - reduced

P R I O R I T Y	MAINTENANCE ACTIVITY NUMBERS	MAINTENANCE RECOMMENDATIONS FEDERAL-AID - STATE MAINTAINED ONLY	MAINTENANCE FORCES	
			REPAIRS COMPLETED BY:	DATE
P		Clean joints and drains		

INITIAL ASSESSMENT FORM FOR STRUCTURE :

Form: bms001c

Printed by: OPS\$U6420

P00001210+01961

Location : E EAST GLACIER

Structure Name : none

Span Data

Group : 0

Type : Main

Description :

Material Type Code, Description : 4 Steel continuous

Median Code, Description : 0 No median

Span Design Code, Description : 9 Truss - Deck

NBI Main Span Flag : X

NBI Approach Span Flag :

Deck Structure Type : 1 Concrete Cast-in-Place

9.14 m

Deck Surfacing Type : 1 Monolithic concrete (concurrently placed with structural deck)

Deck Protection Type : 0 None

Deck Membrain Type : 0 None

0.61 m

Skew Angle : 0

0.61 m

Element Inspection Data

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
Element Description						Pct Stat 1		Pct Stat 2		Pct Stat 3		Pct Stat 4		Pct Stat 5	
13						0	0	0	0	0	0	1607	100	0	0
Unp Conc Deck/AC Ovl		2	2120	sq.m.	X	%		%		%		%		%	

Previous Inspection Notes :

04/01/1994 -

09/06/1996 -

05/11/1999 -

Inspection Notes:

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
Element Description						Pct Stat 1		Pct Stat 2		Pct Stat 3		Pct Stat 4		Pct Stat 5	
107						123	100	0	0	0	0	0	0	0	0
Paint Stl Opn Girder		2	123	m.		%		%		%		%		%	

Previous Inspection Notes :

04/01/1994 -

09/06/1996 -

05/11/1999 - Rust, scale, and flaking.

Inspection Notes:

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
Element Description						Pct Stat 1		Pct Stat 2		Pct Stat 3		Pct Stat 4		Pct Stat 5	
120						317	100	0	0	0	0	0	0		
U/Stl Thru Truss/Bot		2	317	m.		%		%		%		%			

Previous Inspection Notes :

04/01/1994 -

09/06/1996 -

05/11/1999 - Rust, scale, and flaking.

Inspection Notes:



INITIAL ASSESSMENT FORM FOR STRUCTURE :

Printed by: OPSSU6420

P00001210+01961

Location : E EAST GLACIER

Structure Name : none

Span Data

Group : 0

Type : Main

Description :

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
Element Description						Pct Stat 1		Pct Stat 2		Pct Stat 3		Pct Stat 4		Pct Stat 5	
210						2	100	0	0	0	0	0	0		
R/Conc Pier Wall		2	73	m.			%		%		%		%		

Previous Inspection Notes :

04/01/1994 -	REF
09/06/1996 -	OPZI
05/11/1999 - Spalled concrete	OTGU

Inspection Notes:

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
Element Description						Pct Stat 1		Pct Stat 2		Pct Stat 3		Pct Stat 4		Pct Stat 5	
215						1	100	0	0	0	0	0	0		
R/Conc Abutment		2	23	m.			%		%		%		%		

Previous Inspection Notes :

04/01/1994 -	REF
09/06/1996 -	OPZI
05/11/1999 - Conc. deterioration	OTGU

Inspection Notes:

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
Element Description						Pct Stat 1		Pct Stat 2		Pct Stat 3		Pct Stat 4		Pct Stat 5	
234						2	100	0	0	0	0	0	0		
R/Conc Cap		2	73	m.			%		%		%		%		

Previous Inspection Notes :

04/01/1994 -	REF
09/06/1996 -	OPZI
05/11/1999 -	OTGU

Inspection Notes:

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
Element Description						Pct Stat 1		Pct Stat 2		Pct Stat 3		Pct Stat 4		Pct Stat 5	
304						59	100	0	0	0	0				
Open Expansion Joint		2	73	m.			%		%		%				

Previous Inspection Notes :

04/01/1994 -	REF
09/06/1996 -	OPZI
05/11/1999 -	OTGU

Inspection Notes:

INITIAL ASSESSMENT FORM FOR STRUCTURE :

Form: bms001c

Printed by: OPS\$J6420

P00001210+01961

Location : E EAST GLACIER

Structure Name : none

Span Data

Group : 0

Type : Main

Description :

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
Element Description						Pct Stat 1		Pct Stat 2		Pct Stat 3		Pct Stat 4		Pct Stat 5	
311						14	100	0	0	0	0				
Moveable Bearing		2	10	ea.			%		%		%				

Previous Inspection Notes :

04/01/1994 -	REF
09/06/1996 -	OPZ
05/11/1999 - Rust, scale, and dirt.	OPGV

Inspection Notes:

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
Element Description						Pct Stat 1		Pct Stat 2		Pct Stat 3		Pct Stat 4		Pct Stat 5	
313						0	100	0	0	0	0				
Fixed Bearing		2	4	ea.			%		%		%				

Previous Inspection Notes :

04/01/1994 -	REF
09/06/1996 -	OPZ
05/11/1999 - Rust, scale, and dirt.	OPGV

Inspection Notes:

Element No.	Smart Flag	Env	Quantity	Units	Insp Each	Qty 1	Pct 1	Qty 2	Pct 2	Qty 3	Pct 3	Qty 4	Pct 4	Qty 5	Pct 5
Element Description						Pct Stat 1		Pct Stat 2		Pct Stat 3		Pct Stat 4		Pct Stat 5	
334						464	100	0	0	0	0	0	0	0	0
Metal Rail Coated		2	464	m.			%		%		%		%		%

Previous Inspection Notes :

04/01/1994 -	REF
09/06/1996 -	OPZ
05/11/1999 -	OPGV

Inspection Notes:



INITIAL ASSESSMENT FORM FOR STRUCTURE :

P00001210+01961

Location : E EAST GLACIER

Structure Name : none

Span Data

Group : 1

Type : Approach

Description :

Material Type Code, Description : **4 Steel continuous**

Span Design Code, Description : **2 Stringer/Multi-beam or Girder**

Deck Structure Type : **1 Concrete Cast-in-Place**

Deck Surfacing Type : **1 Monolithic concrete (concurrently placed with structural deck)**

Deck Protection Type : **0 None**

Deck Membrain Type : **0 None**

Median Code, Description : **0 No median**

NBI Main Span Flag : ☐ NBI Approach Span Flag : ☒

9.14 m

0.61 m

Skew Angle : 0

0.61 m

Element Inspection Data

INITIAL ASSESSMENT FORM FOR STRUCTURE :

Form: bms001c

OPSSU6420

P00001210+01961

Location : E EAST GLACIER

Structure Name : none

General Inspection Notes

09/06/1996 - Sufficiency Rating Calculation Accepted by ops\$u5963 at 3/10/97 11:19:14
Sufficiency Rating Calculation Accepted by ops\$u9004 at 2/19/97 14:21:41

REF

09/06/1996 - Sufficiency Rating Calculation Accepted by ops\$u5963 at 6/1/98 09:28:20
Sufficiency Rating Calculation Accepted by ops\$u5963 at 8/13/97 10:11:39

OPZI

OPSSU5963 inspection comments -

Structure P00001210+01961 -

Date 9/6/96 -

Previous comments > Sufficiency Rating Calculation Accepted by ops\$u5963 at 3/10/97 11:19:14

Sufficiency Rating Calculation Accepted by ops\$u9004 at 2/19/97 14:21:41

05/11/1999 -

OPGU

APPENDIX B

PUBLIC INVOLVEMENT DOCUMENTATION

PUBLIC INVOLVEMENT DOCUMENTATION

The following paragraphs document the Public Information Meetings held for the Two Medicine River Bridge Replacement project.

INITIAL PUBLIC MEETING

On June 21, 2000, Jacobs Civil Inc. (formerly Sverdrup Civil, Inc.) held a public information meeting in Browning, Montana, to gather input on the Two Medicine River Bridge Replacement project. The meeting was held from 6:00 p.m. to 8:00 p.m. at the Eagle Shield Center. Representatives of Jacobs, the Montana Department of Transportation (MDT), and Wendt Kochman attended the meeting.

Attendance

Eight people attended the meeting:

Brian Gallup	Alice Lowry
Barbara Gallup	Steve Smith
Terry McMasters	Brint Compton
Allan Lowry	Patricia Compton

In addition, the following representatives of Jacobs, MDT, and Wendt Kochman attended the meeting:

Cheryl Jones, Jacobs	Bob Thomson, MDT
Laura Cooper, Jacobs	Carol Kruger, Wendt Kochman
Karl Helvik, MDT	Susan Amo, Wendt Kochman
Bob Modrow, MDT	

Meeting Overview

Jacobs' Project Manager Cheryl Jones opened the meeting and introduced herself and the other representatives in the room. Ms. Jones then reviewed the history of the existing bridge and its current structural and safety problems. She also discussed the bridge replacement project, outlined the project timeline, and reassured residents that the old bridge would be used during construction so the road would not be closed. Ms. Jones also discussed the possibility of creating a sidewalk on the new bridge to accommodate foot traffic, as well as the possibility of either returning the old bridge alignment areas to natural landscaping or using the existing level space to build a lookout. Following the presentation Ms. Jones opened the meeting for public comment, encouraging everyone to speak freely and make his or her opinions known.

With only eight people in attendance, Jacobs and MDT representatives decided to speak to everyone on a one-to-one basis to get more informal comments.

Several attendees were concerned about the safety aspects of creating a sidewalk on the new bridge. There were concerns about encouraging more foot/bike traffic in that area - would it be creating a hazard, especially in light of how fast people drive along that stretch of road? One person asked if the old bridge could be left in place to be used as a walkway. Allan Lowry, Glacier County Commissioner, was concerned about the liability issues involved with that. The opinion was given by one speaker that 'too many people stop' there now, and he didn't believe it would be a good idea to encourage any more.

There were also concerns about the parking lot idea. Those living near the bridge, such as the Gallups, were opposed. “We don’t want a parking lot. We don’t need 45 people sitting there looking in our backyard.” When another person asked if the parking lot was mandatory Ms. Jones explained it was not, but was an idea to be considered. There were also questions about how to protest the parking lot if it is included in the final design. Laura Cooper explained methods for providing input into the decision making process. She also explained that only existing right-of-way land would be used if an overlook or parking lot/viewing area was included in the project. Brian Gallup said building the parking lot would result in a ‘privacy condemnation’ of his property. He said moving the bridge closer to his residence was less of a concern to him than the parking lot. Mr. Gallup said even now people trespass on his land, and he is not in favor of anything which would lead to “picnickers, photographers, who knows who” trespassing on his property.

Barbara Gallup asked if Jacobs knew where the natural gas line ran and was considering that in the plans. Ms. Jones said that identification of utilities was part of the design and planning. Terry McMasters said his biggest concern was making sure the road would not be closed during the construction project. Ms. Cooper confirmed that it would not be closed. Mr. McMasters mentioned how a previous project had not been landscaped well when completed and asked if Jacobs would promise to do a better job. A MDT official indicated the previous project had been hydro-seeded and the new project would not use that method.

Property owners on both the north and south sides of the road expressed concern about their driveways and access to the highway. Both of the Gallups asked if Jacobs had considered wetlands near the current bridge, especially on the north side. They asked that Jacobs give serious consideration to leaving the wetlands alone. It was explained that avoidance of wetland impacts was a high priority for project planning.

Barbara Gallup and Allan Lowry both requested and received aerial photos of the area that Jacobs had provided for display purposes. All those attending the meeting were encouraged to take comment forms with them and mail in any additional thoughts.

SECOND PUBLIC MEETING

On November 29, 2000, Jacobs Civil Inc. held a public information meeting in East Glacier, Montana, to gather input on the Two Medicine River Bridge Replacement project. The meeting was held from 6:00 p.m. to 7:15 p.m. at the East Glacier Woman’s Club. Representatives of Jacobs, MDT, and Wendt Kochman attended the meeting.

Attendance

Seventeen people attended the meeting.

Dennis Baker	Mark Howser
John Chase	Alice Lowry
Myron Chase	Allan Lowry
Brint Compton	John Ray
Patricia Compton	Raymond Salois
Barbara Gallup	Bob Scalese
Brian Gallup	Darla Taylor
Bill Grant	Lisa Wyrick

In addition, the following representatives of Jacobs, MDT, and Wendt Kochman attended the meeting:

Laura Cooper, Jacobs	Bob Thomson, MDT
Cheryl Jones, Jacobs	Carol Kruger, Wendt Kochman
Karl Helvik, MDT	Elise Qvale, Wendt Kochman
Bob Modrow, MDT	

Meeting Overview

Jacobs' Project Manager Cheryl Jones opened the meeting by giving general information on the current status of the project. She recapped the June meeting including feedback and community concerns about replacing the existing bridge. Ms. Jones said the need for a new bridge was brought about because of landslide problems. Four potential locations for the new bridge were identified: S1, S2, N1, and N2. She said the selection process was based on the environmental impacts, cost, roadway geometry, long-term maintenance, wetland impacts, community impacts, and aesthetics.

Ms. Jones said Jacobs met with MDT and ranked the criteria, and options S2 and N2 came out as the best choices. She said the problem with N1 was the bridge would still be in a landslide area. S1 was similar to S2 but had a higher impact on property owners.

Ms. Jones said MDT had several concerns with N2 including the sharp curvature of the road, the longer length of the road, impacts to the railroad spur, and the effect on the property owner's farm. MDT was concerned with S2 because the proposed elevation was so much higher than the existing bridge. She discussed that accident reports showed the grade of road hadn't played a factor in most accidents.

Ms. Jones then reported that geotechnical engineers were sent out into the field last fall to evaluate the slide areas. They found S2 had a smaller landslide area than expected and that drove the cost down. When looking at N2 they found the bedrock wasn't close enough to the surface to support the bridge as they had estimated, and this would drive the cost up for this option. Ms. Jones said N2 would cost \$30 million and S2 would cost \$23 million. She said N2 was quickly falling out of the running.

Alternative S2 appears to have significant advantages. She said this bridge would have two-lanes and full shoulders with barriers separating the road from sidewalks on both sides. East of the bridge, a truck-climbing lane would be provided, similar to the existing configuration.

Her last subject was the scenic overlook. The main concern is with the property owners over their privacy and quiet use of their land. There are also concerns about providing safe access to and from a parking area adjacent to the high-speed highway. Therefore, Ms. Jones believes this option won't occur.

Laura Cooper then took the floor to discuss the environmental impact of the proposed bridge. There is wildlife in the canyon, and the construction of either bridge alternative would not be likely to affect them. Ms. Cooper said there is a slight possibility of some impact on the meadow area (wetland) by one of the bridge pillars, but doesn't see the project significantly affecting the wetlands. She said there should not be any substantial environmental impacts from the project.

Ms. Jones then reviewed pictures of possible bridge alternatives. She also said the old bridge will be open while the new bridge is being constructed with a few short, temporary detours towards the east and west ends of the project. The floor was then opened for Q&A.

MDT discussed a possible time line of three to five years before the project will be complete.

Allen Lowry asked if the old bridge would be removed once the new bridge was complete. Jones said MDT would advertise the bridge to see if anyone would like to adopt it because of its historical significance. If not, MDT would remove it.

Mark Howser asked about the impact of the construction on Hwy. 2. Bob Thomson with MDT answered that contractors must obey the legal hauling limits. There should be no significant impacts on Hwy. 2, but if there are the contractor will need to pay for repairs. Thomson added that the state maintenance people would review this very closely.

Mr. Howser also asked if the sidewalk would be ADA (Americans with Disabilities Act) compliant. Ms. Jones answered yes.

All those attending the meeting were encouraged to take comment forms with them and mail in any additional thoughts.

Comment Form for: PUBLIC INFORMATION MEETING

November 29, 2000 • East Glacier Community Center

Subject:

Two Medicine River Bridge Replacement
Project No. BR 1-3 (42) 210/Control No. 3886
East end of East Glacier to end of bridge
Reference Post 210

Comments:

After attending said public information meeting, I favor alternative S2 for this project. This alternative seems to impact the adjoining landowners the least. Also, the initial cost estimates are more favorable than other options presented. Also like the CBOX design for this bridge.

My continued concerns are mostly related to the impact on traffic flow during the tourist/construction season. Even two businesses on US 2 that will be negatively affected by major disruptions to the normal flow of traffic in the summer and fall. I hope much consideration is given to planning for disruptions during construction of TMR Bridge.

Thank you for your informative meeting & keep up the good work.

By (signature): Mark Houser

Printed Name: Mark Houser

Address: 512 US Highway 2, East Glacier Park, MT 59434
(PO Box 318)

If mailing comments after the meeting send no later than December 13th to:

Sverdrup Civil, Inc.
1455 West 2200 South, Suite 300
Salt Lake City, UT 84119
Attention: Cheryl Jones
Or e-mail: jonesca@sverdrup.com



Montana Department of Transportation

Comment Form for: PUBLIC INFORMATION MEETING

November 29, 2000 • East Glacier Community Center

Subject:

Two Medicine River Bridge Replacement
Project No. BR 1-3 (42) 210/Control No. 3886
East end of East Glacier to end of bridge
Reference Post 210

Comments:

IT WOULD BE HELPFULL IF THE BRIDGE
DESIGN WOULD HAVE THE PEDESTRIAN WALKWAY
ON THE NORTH-UP STREAM- FACING THE RR BRIDGE

THERE WILL BE A PEDESTRIAN TRAIL BUILT
NEXT SPRING, FRACK SIDE OF US 2, CENTER OF
TOWN GOING UNDER THE UNDERPASS UP HWY 49.
PERHAPS IN THE FUTURE, WITH OTHE FUNDING
THE TRAIL (SIDEWALK) COULD CONNECT
WITH THE BRIDGE WALKWAY.

By (signature): Myron P Chase
Printed Name: MYRON P CHASE
Address: 2001 3rd AVE NORTH GT. FALLS, MT 59401

If mailing comments after the meeting send no later than December 13th to:

Sverdrup Civil, Inc.
1455 West 2200 South, Suite 300
Salt Lake City, UT 84119
Attention: Cheryl Jones
Or e-mail: jonesca@sverdrup.com



Montana Department of Transportation

Comment Form for: PUBLIC INFORMATION MEETING

November 29, 2000 • East Glacier Community Center

Subject:

Two Medicine River Bridge Replacement
Project No. BR 1-3 (42) 210/Control No. 3886
East end of East Glacier to end of bridge
Reference Post 210

Comments:

PREFER ALIGNMENT S2.

LESS IMPACT ON LAND.

DOES NOT WIPE OUT FARM AS N2 WOULD.

CONCRETE BOX IS AESTHETICALLY PLEASING VS. STEEL.

By (signature):



Printed Name:

William P. Grant

Address:

P.O.B. 163 East Glacier, MT 59434

If mailing comments after the meeting send no later than December 13th to:

Sverdrup Civil, Inc.
1455 West 2200 South, Suite 300
Salt Lake City, UT 84119
Attention: Cheryl Jones
Or e-mail: jonesca@sverdrup.com



Montana Department of Transportation

Comment Form for: PUBLIC INFORMATION MEETING

November 29, 2000 • East Glacier Community Center

Subject:

Two Medicine River Bridge Replacement
Project No. BR 1-3 (42) 210/Control No. 3886
East end of East Glacier to end of bridge
Reference Post 210

Comments:

I am opposed to the N2 option as I am planning and have started a lodging facility on my property at the West end of the project.

I am, however, heartened by the information that S2 seems to be the favored option for several important reasons. —> foundation, impact on wetlands, impact on adjacent property owners — i.e. the Gallups and I.

Thanks for coming and explaining the project.

By (signature):

Robert R. Scapese

Printed Name:

Robert R. Scapese

Address:

Box 1 Big Sandy, MT 59520

If mailing comments after the meeting send no later than December 13th to:

Sverdrup Civil, Inc.
1455 West 2200 South, Suite 300
Salt Lake City, UT 84119
Attention: Cheryl Jones
Or e-mail: jonesca@sverdrup.com



Montana Department of Transportation

Comment Form for: PUBLIC INFORMATION MEETING

November 29, 2000 • East Glacier Community Center

Subject:

Two Medicine River Bridge Replacement
Project No. BR 1-3 (42) 210/Control No. 3886
East end of East Glacier to end of bridge
Reference Post 210

Comments:

I would like to know the purpose for replacing the bridge at East Glacier. If there are structural concerns and the bridge is failing then I can understand it. As it stands now I see no need to replace a perfectly good bridge. I drive it regularly at all times of year and have no problems with the approach or the bridge itself. The project seems like a waste of money and will no doubt have a considerable impact to the local environment during construction.

By (signature): 

Printed Name: Steve Rolfing

Address: 600 Blackmer Lane, Columbia Falls, MT 59912

If mailing comments after the meeting send no later than December 13th to:

Sverdrup Civil, Inc.
1455 West 2200 South, Suite 300
Salt Lake City, UT 84119
Attention: Cheryl Jones
Or e-mail: jonesca@sverdrup.com



Montana Department of Transportation

Comment Form for: PUBLIC INFORMATION MEETING

November 29, 2000 • East Glacier Community Center

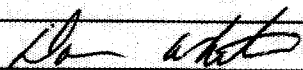
Subject:

Two Medicine River Bridge Replacement
Project No. BR 1-3 (42) 210/Control No. 3886
East end of East Glacier to end of bridge
Reference Post 210

Comments:

THIS NEW BRIDGE SHOULD HAVE ACCOMMODATIONS FOR
1. PEDESTRIAN & BIKE TRAFFIC - BOTH SIDES OF ROAD
2. WILDLIFE UNDERPASS

By (signature):



Printed Name:

DON WHITE

Address:

P.O. Box 850 - Browning, MT 59417

If mailing comments after the meeting send no later than December 13th to:

Sverdrup Civil, Inc.
1455 West 2200 South, Suite 300
Salt Lake City, UT 84119
Attention: Cheryl Jones
Or e-mail: jonesca@sverdrup.com



Montana Department of Transportation

RESPONSES TO QUESTIONS AND COMMENTS FROM PUBLIC INVOLVEMENT PROCESS

INITIAL PUBLIC MEETING

Comment : There were concerns about encouraging more foot/bike traffic in that area – would it be creating a hazard, especially in light of how fast people drive along that stretch of road ?

Answer: It is not anticipated that the proposed project would encourage more foot/bike traffic than already uses the existing bridge. However, it is prudent to provide adequate protection for the non-motorized users of the bridge and approaches that are expected to continue to use the facility. This would be accomplished by the addition of the sidewalk (separated from traffic by a barrier) for pedestrians and the shoulders for bicyclists.

Comment: One person asked if the old bridge could be left in place to be used as a walkway. Allan Lowry, Glacier County Commissioner, was concerned about the liability issues involved with that. The opinion was given by one speaker that “too many people stop” there now, and he didn’t believe it would be a good idea to encourage any more.

Answer: The existing bridge would be left in place only if some private or public entity (other than MDT) were to adopt it and agree to maintain it and accept all future liability for it. Otherwise, the bridge would be removed after completion of the new structure.

SECOND PUBLIC MEETING

Clarification: During the presentation at the second public meeting, Ms. Jones indicated that the proposed bridge would have sidewalks on both sides, separated from traffic by concrete barriers. Subsequent study indicated that a sidewalk is only justified for one side of the bridge; it would be provided on the north side. Also, the sidewalk would be separated from traffic by a barrier, as stated, but options other than concrete are being evaluated.

WRITTEN COMMENTS AFTER SECOND PUBLIC MEETING

Comment from Mr. Mark Howser: “After attending said public information meeting, I favor the alternative S2 for this project. This alternative seems to impact the adjoining landowners the least. Also, the initial cost estimates a more favorable than other options present. I also like the CBOX design for this bridge.

My continued concerns are most related to the impact on traffic flow during the tourist/construction season. I own two businesses on US 2 that will be negatively affected by major disruptions to the normal flow of traffic in the summer and fall. I hope much consideration is given to planning for disruptions during construction of TMR Bridge.

Thank you for your informative meeting! Keep up the good work.”

Response: The fact that the proposed alignment is offset from the existing bridge and roadway would greatly reduce the impact of construction on through traffic. Only when constructing the ends of the roadway approaches (where the project ties into the existing roadway) would there be a direct impact on through traffic. Even then, the contractor would be required to maintain a lane of traffic open in each direction at all times. Also, because bridge projects are relatively short in length compared to multi-mile roadway projects, it is not expected that the project would deter traffic from using US 2 in this area.

Comment from Mr. Myron Chase: “It would be helpful if the bridge design would have the pedestrian walkway on the north – upstream – facing the railroad bridge.

There will be a pedestrian trail built next spring, track side of US 2, center of town going under the underpass up Hwy. 44. Perhaps in the future, with other funding, the trail (sidewalk) could connect with the bridge walkway.”

Response: The proposed location for the sidewalk in the Preferred Alternative is the north side.

Comment from Mr. William Grant: “Prefer Alignment S2. Less impact on land. Does not wipe out farm as N2 would. Concrete box is aesthetically pleasing versus steel.”

Response: Alignment S2 is the Preferred Alternative.

Comment from Mr. Robert Scalese: “I am opposed to the N2 option as I am planning and have started a lodging facility on my property at the west end of the project.

I am, however, heartened by this information that S2 seems to be the favored option for several important reasons → foundation, \$\$, impact on wetlands, impact on adjacent property owners, i.e. the Gallups and I.

Thanks for coming and explaining the project.”

Response: Alignment S2 is the Preferred Alternative.

Comment from Mr. Steve Rolfing: “I would like to know the purpose for replacing the bridge at East Glacier. If there are structural concerns and the bridge is failing then I can understand it. As it stands now I see no need to replace a perfectly good bridge. I drive it regularly at all times of the year and have no problems with the approach or the bridge itself. The project seems like a waste of money and will no doubt have a considerable impact to the local environment during construction.”

Response: The purpose and need for the project are described in Section 2.0 of this Environmental Assessment, the most critical fact being the fact that the existing bridge has a Sufficiency Rating of 31 and is classified as structurally deficient.

Comment from Mr. Don White: “This new bridge should have accommodations for

1. pedestrian and bike traffic – both sides of road
2. wildlife underpass.”

Response: Bike traffic would be accommodated on the eight-foot shoulders (both sides) that are proposed for the full length of the bridge and roadway approaches. Pedestrians would be accommodated on the sidewalk proposed for the north side of the bridge. The sidewalk would be separated from traffic by a barrier rail. It was determined that it was prohibitively costly to provide a sidewalk for this length of structure and that one sidewalk would be sufficient, particularly since the north side is the favored side for viewing.

APPENDIX C

**JUSTIFICATION FOR
PROPOSED DESIGN EXCEPTION**

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TWO MEDICINE RIVER BRIDGE
BR 1-3(42)210
CONTROL No. 3886

DESIGN MEMORANDUM

DATE: January 31, 2003

SUBJECT: Two Medicine River Bridge
Work Type - Bridge Replacement and Approach Roadway Reconstruction
Justification for Design Exception

Introduction:

This memorandum documents the justification for a design exception to the 4% maximum grade criteria. We propose the use of a 5% grade into a sag curve on the eastern approach, rather than the maximum of 4% required by MDT (ref. *Montana Road Design Manual* Figure 12-2, "Geometric Design Criteria for Rural Principal Arterials" for rolling terrain, which is consistent with AASHTO design standards). This design exception is being sought due to the resulting shorter bridge span and significant cost savings offered by using this steeper grade without, compromise to safety. The cost savings is recognized in the initial construction costs as well as in long-term structure maintenance.

Project Background:

The project is located on US 2, a rural primary route in Glacier County, west of Browning, just east of East Glacier, and within the Blackfeet Indian Reservation. This bridge replacement project is proposed due to the low sufficiency rating of 31 (as of September 24, 2001) for the existing bridge as well as recurrent active landslides in the vicinity of the substructure, which have caused movement of bridge elements. The project includes the construction of a new structure across the Two Medicine River and approximately one kilometer of roadway on both the eastern and western approaches, located south of the existing structure and approaches. The design speed is 100 km/h, as required for a rural principle arterial and rolling terrain. Roadway width will generally be 12 meters (two 3.6m lanes and two 2.4m shoulders), with the exception of the eastern approach which will be 15.6 meters to accommodate reconstruction of the existing climbing lane.

As part of the preliminary design effort, a Draft Alignment Screening Report was prepared and submitted to MDT for review. The design presented in this report met the MDT and AASHTO Design Standards by adhering to the 4% maximum grade, which is a significant improvement over the existing 7% grade. During the formal review of the report, MDT's Great Falls District and Helena representatives both concurred with Jacobs' recommendation of Alignment S2 (see Exhibit 1 – Plan, attached). However, the potential for relaxation of the 4% maximum grade criteria was discussed by MDT, despite the departure from the standard design criteria. This was suggested because it was recognized that the bridge length is indirectly related to the grade at the eastern approach (i.e., the greater the slope, the shorter the resulting bridge length, and vice versa). Bridge length reduction is somewhat offset by the increase in roadway length, but roadway costs are generally far less significant than bridge costs.

Profile Design and Estimated Costs:

It was agreed that a 5% grade would be a reasonable maximum to evaluate for the project. Therefore, Jacobs prepared an alternative preliminary profile design using a 5% grade (see Exhibit 2 – Profile), estimated the associated bridge and roadway approach costs, and compared the results to the 4% grade profile alternative. The comparison is tabulated in Table 1, below.

Category of Comparison	Grade 4%	5%
Bridge Length (meters)	532	462.5
Bridge Construction Cost	\$28,500,000	\$25,200,000
Roadway Construction Cost	\$ 2,200,000	\$ 1,200,000
Total Project Cost	\$30,700,000	\$26,400,000

Table 1 – Comparison of Costs for 4% and 5% Vertical Profile Grades

As expected, the total project cost is less when the 5% grade is used as compared to the 4% grade, by an estimated \$4.3 million. This occurs because the bridge would be significantly shorter (by 69.5

meters) and because the east approach roadway embankment, and therefore the required quantity of fill, would be much lower (i.e. closer to existing ground) than with the 4% grade alternative.

In addition to the benefit of reduced cost of initial construction, the long-term maintenance costs would be lower for the 5% grade alternative because of the reduced bridge length.

It should be noted that all other design criteria specified in the *Montana Road Design Manual*, Figure 12-2, “Geometric Design Criteria for Rural Principal Arterials” are met with the proposed profile.

Safety Analysis:

Accident data for the site was reviewed in order to determine accident trends and to evaluate whether the use of a 5% grade would compromise safety within the project area. As discussed in the October 2000 Preliminary Traffic Report prepared for the project, accident data provided by MDT for the period from January 1, 1989 to December 31, 1998 from RP 209.4 to RP 210.9 shows a total of 22 accidents. The data was reviewed to determine areas of accident concentration, causes of accidents, and numbers of vehicles involved. The findings were as follows:

- The highest concentration of accidents in the project section, 11 of the 22, occurred between RP 210.1 and 210.3, which is on the existing Two Medicine River bridge.
- Of the 11 accidents, six were in ice, slush, or snow-covered roadway conditions, and six were in dark/non-lighted conditions.
- Of the 22 total accidents, 13 (or 59% of the total) were reported as single-vehicle accidents.
- The nine non-single-vehicle collision types were sideswipes, right-angle, head-on, or rear-end type collisions.

The low number of data points makes it difficult to draw specific conclusions regarding trends. However, there is no evidence that the existing 7% down grade on the east approach was a contributing factor in any of the accidents. Since the proposed grade will be significantly flatter than the existing, there is no reason to believe that the 5% would compromise safety in the project area, particularly since the proposed vertical curves associated with the 5% grade would provide the desirable stopping sight distance for the 100 km/h design speed.

The data does suggest a trend of accidents on the existing bridge and bridge approaches due to loss of control on icy or slushy roadway conditions or in darkness. The roadway drainage improvements that are proposed as part of the project will mitigate this hazard by facilitating the removal of water from the driving surface and reducing the potential for slushy or icy conditions on the roadway and bridge. Drainage on the proposed bridge will be improved by the proposed profile which locates the low point of the sag curve at the far west end of the bridge, compared to the existing profile where the sag is centered on the bridge. The addition of shoulders on the bridge structure, plus improvements to signing and pavement markings will also improve the safety of the project area. These improvements will be provided regardless of the vertical profile that is used. It should be noted that a safety improvement project was undertaken in 1998 that included the installation of new guardrail at the bridge ends, an area of accident clusters previously identified by MDT, as well as the addition of signing, delineation, and pavement overlay on the bridge.

A feature of the existing roadway within the project limits that will be duplicated in the proposed design is the construction of a climbing lane for eastbound traffic. The climbing lane will serve to mitigate any potential difficulty trucks may experience with a 5% grade by allowing faster traffic to safely pass. Consistent with the current layout, the climbing lane will be developed just beyond the eastern limits of the proposed bridge and continue to the top of the hill.

Conclusion:

We recommend the approval of the 5% grade on the east approach, as shown in Exhibit 2 – Profile. There is no evidence that the existing 7% grade has an impact on accident trends at the site. The accidents appear to be more related to snow, slush, and ice on the roadway, which will be mitigated by the drainage and bridge profile improvements proposed for the project. Additionally, with the inclusion of an eastbound climbing lane on the east approach, any functional impact that the 5% grade may have on traffic capacity will be mitigated by allowing through-traffic to safely pass slow-moving vehicles.

Approval of the 5% grade is further justified by the potential project cost savings of an estimated \$4.3 million (compared to a 4% grade). The result will be an economical project where safety is not compromised.

Attachments:

Exhibit 1 - Plan

Exhibit 2 - Profile

Prepared by: Cheryl A. Jones

Cheryl A. Jones, P.E.

Jacobs Civil Inc.

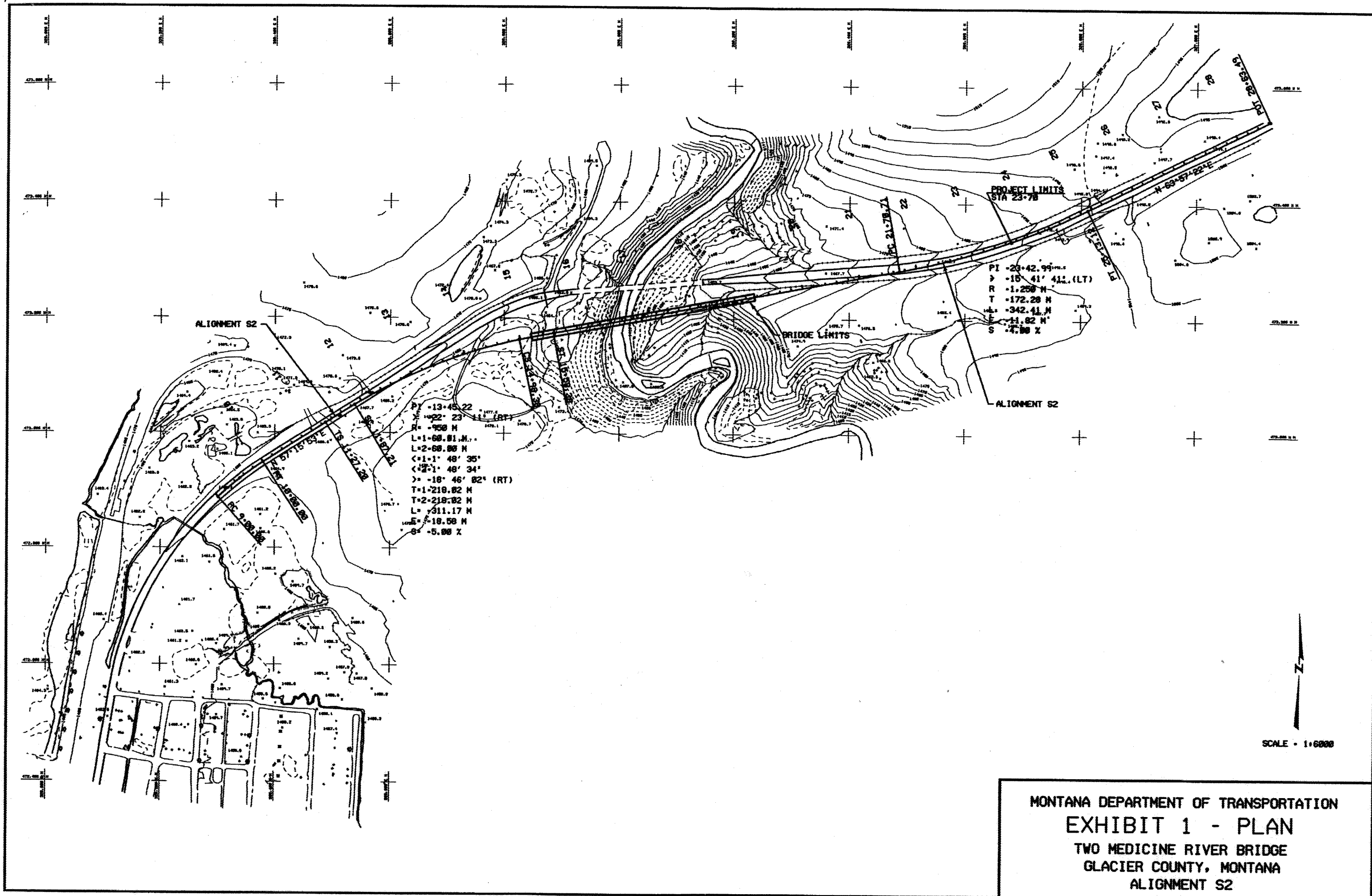
Concur: _____ Date: _____

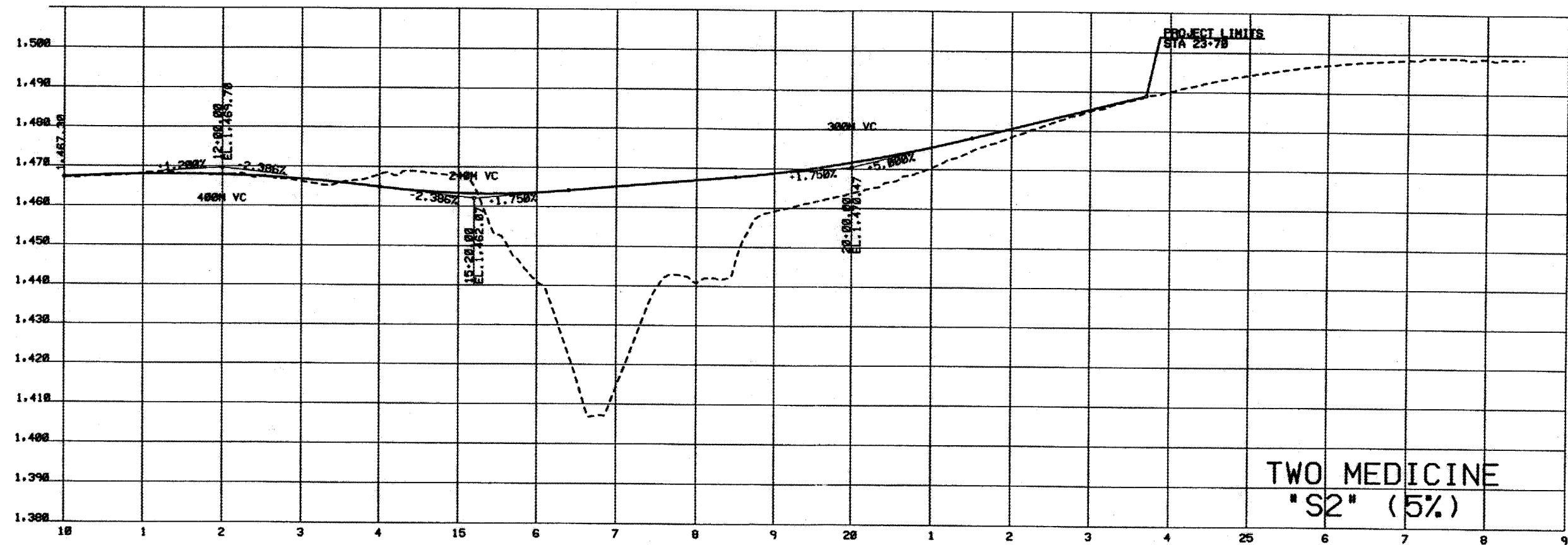
Carl S. Peil, P.E.

Preconstruction Engineer

Concur: _____ Date: _____

Federal Highway Administration





TWO MEDICINE
"S2" (5%)

MONTANA DEPARTMENT OF TRANSPORTATION
EXHIBIT 2 - PROFILE
TWO MEDICINE RIVER BRIDGE
GLACIER COUNTY, MONTANA
ALIGNMENT S2

APPENDIX D

**PERSONS RESPONSIBLE FOR PREPARATION OF
THIS ENVIRONMENTAL ASSESSMENT**

**PERSONS RESPONSIBLE FOR PREPARATION
OF THE ENVIRONMENTAL ASSESSMENT
FOR THE
TWO MEDICINE RIVER BRIDGE**

NAME	DISCIPLINE	EDUCATION	YEARS EXPERIENCE
Cooper, Laura	Environmental	BS, MBA	22
Ferguson, David	Cultural Resources	BA, MA	13
Jones, Cheryl A.	Civil	BS	23
Korpi, David W.	Structures	BS	25
Simmons, Jeffrey H.	Roadway	BS	13
Smith, Donald C.	Environmental	BS, MS	29
Sorensen, Glenn A.	Drainage	BS	17
Wu, Jim	Geotechnical	BS, MS, PhD	28

